








**The Australian Commodore
and Amiga Review**

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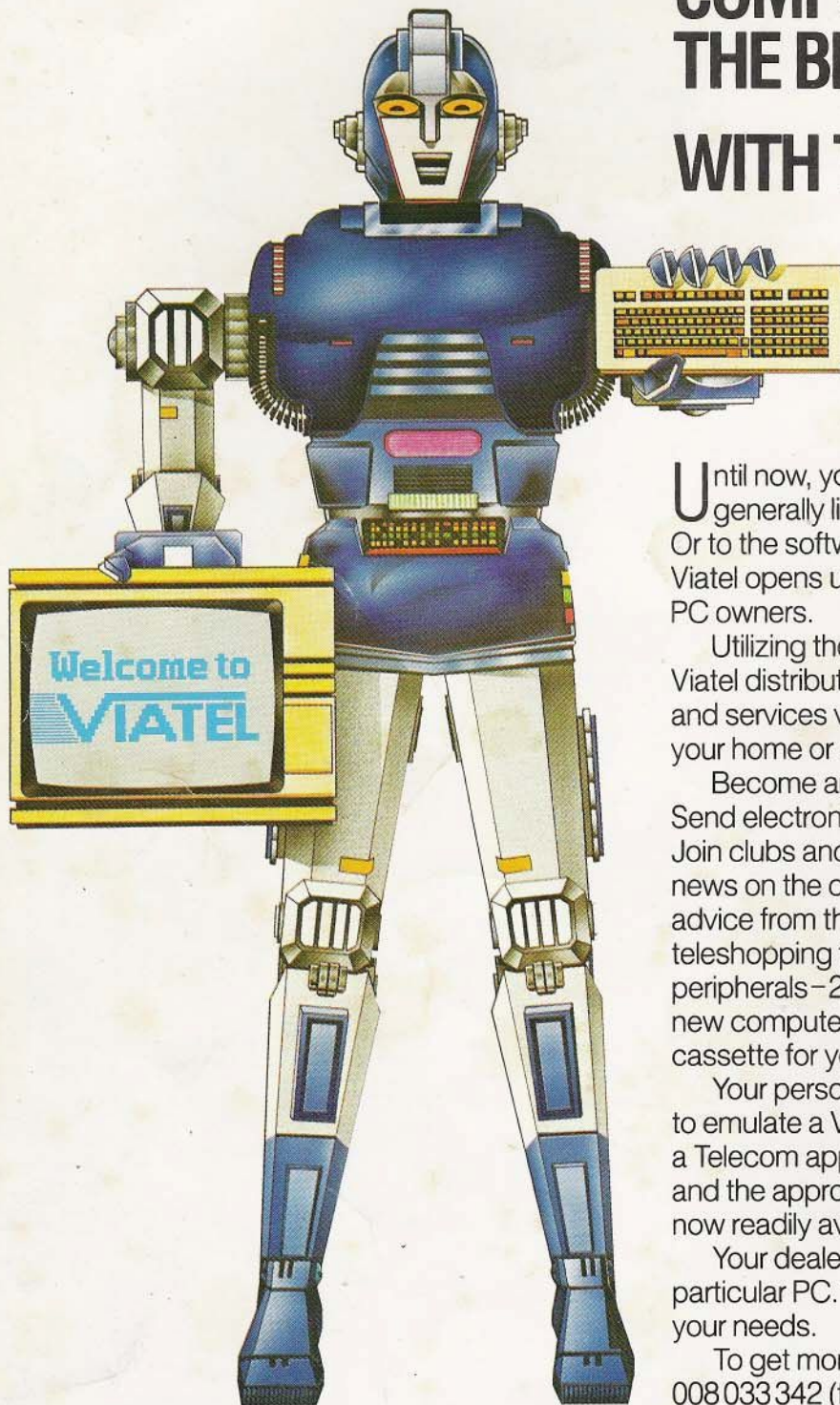
Commodore Annual 1989

The C64 - still king of home computers



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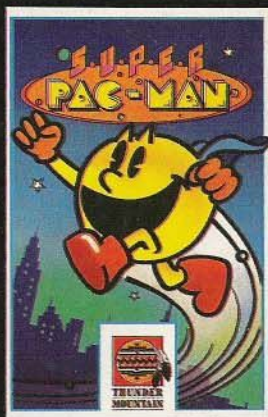
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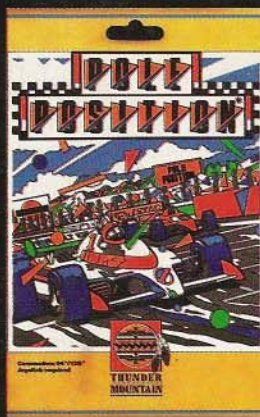


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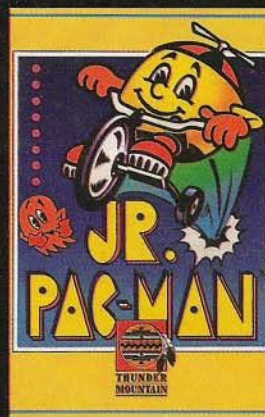
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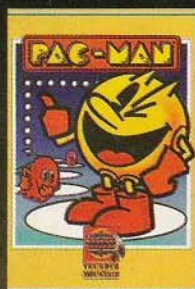
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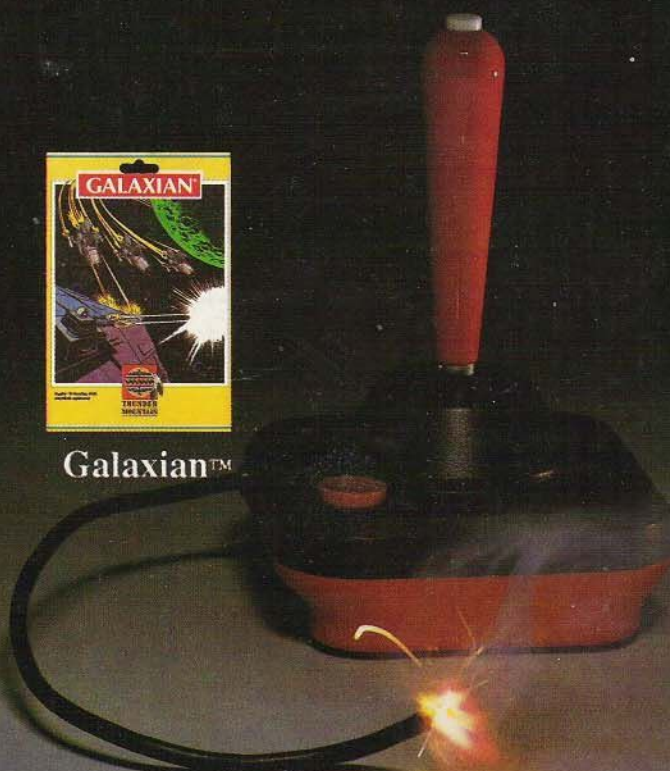
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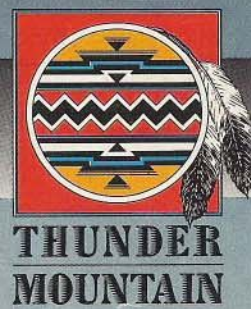


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This graphic was imported from the Amiga and demonstrates the C64's ability to reproduce digitised multi-colour images

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Editorial

In an industry best noted for dramatic change, the Commodore 64 stands out as an irony. A constant entity. Years after its launch it remains unchallenged as the best value for money home and hobbyist computer around.

Although catering primarily for the entertainment market, the C64 also has a serious side. In this year's Annual we've examined many different aspects of the C64 from the beginner's point of view. The majority of the articles enable you to either use the machine better, or decide what products will help you get more out of it.

For more experienced users, there's an overview of getting into machine code, a memory listing, BASIC tips and a complete User Group and BBS listing.

Newer owners will find the BASIC tutorial, Wordprocessing and Graphics Roundup, Beginners Guide, Care of your C64 and Communications introduction invaluable.

There's something for everyone - reflecting the general atmosphere of our monthly publication, the *Australian Commodore and Amiga Review*. There you'll find regular tutorials, product guides, reviews of new games and help on just about every aspect of the C64 and C128. We also cover the Amiga range for those of you considering upgrading at a later date.

I've always found much joy in writing my own programs. When you've finished playing games, and writing reports on your wordprocessor, give the C64's BASIC a try. It's challenging, and fulfilling. You get instant results every time. Don't be afraid to experiment. Always SAVE your work in progress. In the software guide at the back of this publication is a list of books. Many of these are ideal for the learner, and cover everything from simple filing programs to animation and music.

Give programming a go. That's what the C64 is really all about for the hobbyist. Of course, if you have to play a game, we review all the latest releases in our monthly magazine. Some of our favourite reviews from past issues are included inside these pages - it pays to have at least one or two good excuses for a diversion on a rainy day. Although here in Australia, it's more likely you're trying to get out of the heat - Melbourne excepted. Anyhow, Enjoy!

Andrew Farrell
Editor

Preface



I'm pleased to be able to welcome you to the second Commodore Annual of the *Commodore and Amiga Review*. Last year's effort was incredibly well presented and provided informative reading, and despite being a hard act to follow pales in comparison to this one.

Commodore computers both Australia and worldwide have been experiencing increasing success with sales of our products . . . The C64 remains the world's most widely sold computer with over TEN MILLION sold worldwide, despite tough competition from the Amiga 500 that has sold 50,000 in Australia alone.

The PC COLT is also a winner for Commodore as our IBM compatible designed specifically for use in both the office and home. Our philosophy has always been to provide "high-tech at low cost", and so the COLT continues to be the best value entry level PC on the market.

This Annual provides some solid information for Commodore users, regardless of whether they're first-time or long-time devotees. The software Guide is the most recent compilation currently in circulation and provides an excellent reference; similarly the articles on wordprocessing and graphics should be of value to the Commodore user.

One final point I would like to stress is that our success at Commodore is due to you, our end user - thank you for your support.

Tony Serra
Managing Director
Australia/Asia Pacific
Commodore Business Machines

Beginners Start Here!

by Andrew Farrell

Just getting into computers? There's lots to learn! The following article will help explain some of the concepts you need to know. Every month, in the Australian Commodore and Amiga Review, you'll find articles that explain different aspects of using your computer just like this one.

Hardware vs Software

It's an often used, but very true phrase, that if you can kick it, it's hardware. Everything from the computer itself, to the many appendages we can connect, is referred to as hardware. The nuts and bolts, silicon and plastic are the hardware.

A printer, disk drive, terminal, visual display unit or plug in games cartridge is hardware. Software refers to the instructions that a computer understands, and that are arranged in a special order referred to as a program.

Putting information into a computer is NOT programming it. Preparing a list of commands or special instructions for the computer to execute is. Both programs and information reside safely in the computer's memory, and on floppy disks or other storage media.

The concept compares well with the home sound system. Imagine that the record player, cassette deck, or CD player are the hardware of your computer system. The cassettes, CD's and records are

equivalent to the floppy disks, or cassettes used in a computer.

There is one fundamental difference. As you play a track off your favourite record, the music is picked up by the needle, and played through the amplifier. The music never actually leaves the record, and you need the record to play the music.

Insert a disk into your computer, and you must LOAD or transfer the program into the computer's memory. A small head, similar to the head in a cassette player, reads the information from the disk.

The program remains on the disk it was on, but a copy now resides within the computer itself. The instructions contained within are then executed.

You can see the results on your screen, or printer, but the program itself is really just a series of electrical impulses. Since the program is safely tucked away in the computer's memory, which is quite large, you can remove the disk. Some programs access the disk, retrieving small amounts of information each time, and updating data already stored.

For these, you must be very careful not to remove the disk until the program has finished.

RAM & ROM

Inside the computer, specialised silicon chips perform specific jobs. Each chip is encased in black plastic, with

many small legs. Inside this largish rectangular shape is the silicon chip itself, which is only the size of your smallest fingernail.

Computer programs and information are stored in these chips. Two types are used in particular.

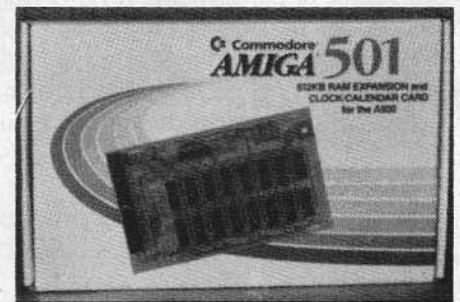
Random Access Memory

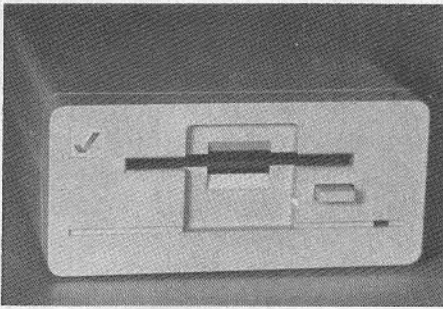
Random Access Memory is the computer's workspace. Information is stored and can be changed in RAM. RAM is divided into bytes, each of which can store roughly one character. A character could be any letter of the alphabet, or perhaps a number or special symbol.

Each byte or character (letters and numbers) is in turn broken down into BITS. Each BIT corresponds to a transistor inside a silicon chip. Transistors may be either off or on, just like a simple switch. By combining several transistors together, it's possible to produce different combinations of offs and ons.

With eight transistors there are 256 different combinations, or ways of arranging the ons and offs. An eight BIT computer has eight BITS in each BYTE. Larger computers use sixteen or even thirty BITS in each BYTE.

One thousand and twentyfour bytes make a KILOBYTE, or K for short. A





typical Amiga computer would have 512 Kilobytes of RAM, or workspace. Deep inside, computers work using a number system called BINARY. In the early days, to program and use a computer you needed to know how to use Binary.

Today, only application programmers and the people who design the system software or operating system of a computer need ever deal with this counting system.

Read Only Memory

Like RAM in all respects except that it can't be erased, or written to, ROM is a permanent means of storing information. Programs required by the computer to do simple tasks are often stored in ROM. For example, to print a character on the screen, a special routine or small program might be stored permanently in the computer's ROM. Any other program needing to print a character on the screen could then make use of that routine.

Many thousands of routines go to make up the computer's OPERATING SYSTEM or built in languages.

Peripherals

Most computers enable you to add a variety of additional devices for storing information, printing it out, or performing special tasks.

These devices are called peripherals. They combine to make a computer into a system, much the same as the various attachments to a food processor. Although the food processor works on its own, the additional plug in items enhance its operation, just like the computer and its peri-

pherals.

A few commonly used peripherals and hardware add-ons include:-

Disk Drive, Mouse, Expansion RAM, Printer, Paddle, Digitiser, Modem, Joystick, SCSI Interface, Tape Backup, Light-Pen, Drive Controller, Scanner, Touch Pad, EGA Card, Monitor, Track Ball, Parallel Interface

Disk drives

A disk drive is like a combination of your record player and cassette deck. Information is stored magnetically, like a cassette. However it is stored on a disk, like a record.

The disk is divided up into tracks. Each track forms a complete circle, unlike those on a record which spiral toward the centre. Tracks are then divided into parts called sectors.

A blank disk must first be formatted before use. During this operation, the tracks and sectors are labelled, and a directory is stored on the disk telling the computer where there is space to store information.

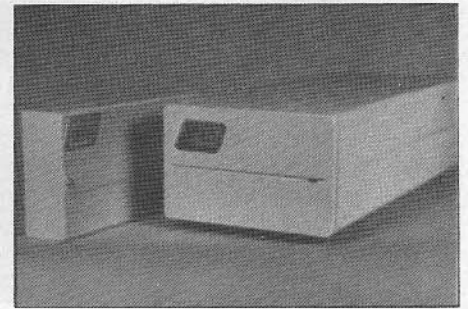
The way in which different Operating Systems label each track and sector varies. For this reason, it's not always possible to take information stored on a disk by a certain computer, and read it from a different machine.

This problem is often described as the "compatibility" of a machine. If a computer can read and execute programs stored on IBM PC type formatted disks, it is known as an IBM compatible computer. Commodore PC's are IBM compatible.

Fortunately, there are other ways of moving information between "incompatible" formats. Software written to work with one particular microprocessor will not work on a computer with an incompatible microprocessor. For example programs for the Commodore Amiga will not work on an Commodore PC.

Files

Information stored on a disk is



grouped into files. Each file has a name, length, and type. A file might contain text relating to a wordprocessing document. Files may also be programs, a database, lists or special numbers.

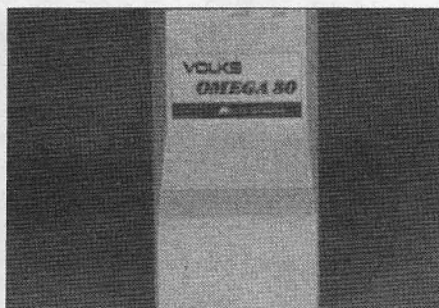
By arranging information in this way, the disk operating system knows how all the information on the disk relates. Without the file arrangement, each sector on the disk would be meaningless.

Whenever a file is stored on a disk, its name is recorded in the disk directory. This is just a list of the disk's contents, including whereabouts files can be found, how long they are and what type of file it is that is stored.

If you need to know what is on the disk, it is normally possible to take a look at the disk directory. Files may be deleted or erased. When this happens, the directory entry about that file is removed, freeing space for other information. However, until the disk is written to, the information relating to that file is still scattered around the disk.

You may also copy files from one disk to another, on the same disk or even entire disks at a time. The process of getting a file into the computer is referred to as LOADing or reading that particular file. In some instances you only use part of a file at a time. For example, if you had a database or list of phone numbers, along with the subscribers address and personal interests, the resulting file would be very large.

If you wanted information about one particular person, it would be wasteful to have to LOAD the entire file into memory. Instead, a special pointer is used to jump into the file to the right spot where



the required details are stored. Only that part of the file is then read, and may be changed and updated. This is called RANDOM ACCESS.

Modems

A modem is used to send information between computers, via telephone. Data is changed into audible beeps and tones, which is then decoded by the receiving computer. This process is known as MODulation/DEModulation - thus the term MODEM. Communications between computers is an exciting field. It makes possible some very powerful facilities. Automatic Teller Machines are linked together using modems.

At home, a small \$300 modem can enable you to talk with services offering banking, stockbroking, weather reports, TAB, hotel/motel and travel bookings and much more.

Information is sent at different speeds, measured in BITS per second, or BAUD. Rates of 300, 1200 and 2400 BAUD are fairly common. 300 BAUD is about as fast as you can read, or around 30 characters per second.

Others

Dozens of other devices are available to perform special tasks. These include printer/plotters, datasets, digitisers, and scanners.

Operating systems and languages

For a computer to perform even the simplest of tasks, it needs software.

When you switch on, a special program built into a ROM in the computer, comes to life. It checks how much memory is available, what peripherals are connected, and displays a power up message.

This program is part of the computer's operating system, or group of programs that let you use the computer. Examples of operating systems are MS-DOS, Unix, CPM, and Amiga DOS.

The word DOS stands for Disk Operating System. This denotes that the operating system is disk based. In other words, you need a special disk and disk drive to make it work.

Different operating systems require different commands to perform a job. On some small computers, the operating system is part of the built in programming language.

A Commodore 64 has the BASIC (Beginners All Purpose Symbolic Instruction Code) programming language, and operating system stored entirely in the computer's 16K ROM. No disk or disk drive is needed. Information can be stored on cassette.

An MS-DOS machine, such as the Commodore PC20, has a small part of the operating system built into ROM, some which is LOADED into RAM when the computer is powered up and the rest is only LOADED from disk as needed.

On the Commodore Amiga the operating system is capable of doing several jobs at once. It also has a variety of modes of operation. Using the Workbench, commands are issued by way of a pointer called the MOUSE. Pictures and menus on the screen provide the various options available.

From the CLI, or Command Line Interpreter, commands are issued in the same way as MS-DOS. Normally it is the operating system that decides whether software from one computer is compatible to any extent with software from another.

It's not necessary to know how to program a computer to be able to use one to the full. However, if you plan

writing your own custom applications, learning to program is an essential step.

A program language is structured much the same as the different languages we speak. Each has its own set of words, or commands and statements, with special rules of grammar, or ways as to how they can be combined.

Most home computers provide BASIC for you to write programs in. This language is fairly easy to get started in, and is suitable for many different uses.

More serious users writing business programs will use *DBASE III* on an IBM compatible computer, using the MS-DOS 3.2 operating system. *DBASE III* is designed for storing information in much the same way as a filing cabinet. It has a special language to program functions such as adding up the total of all invoices outstanding, or automatically deleting inactive clients on a mailing list.

Around the keyboard and screen

The computer's keyboard and screen are an important part of any computer system. Using the keyboard, the user can write programs, enter information, and send commands to peripherals. Additional devices are also used to control the computer, such as a Mouse, Light-Pen, or Touch Screen.

Every key press is sent to a small buffer or temporary storage area. From here it is fetched as soon as the program running is ready to use it. Sometimes it's possible to type ahead of the computer. Because of this buffer, your keystrokes aren't forgotten.

The keyboard itself is much the same as a standard typewriter. It is called a QWERTY keyboard, due to the arrangement of the first five characters on the top row of alphabet keys. The keyboard we use today was actually designed to slow down our typing speed. When typewriters were first invented, typists found that they could type faster than the mechanics of the typewriter were able to

cope. So the keyboard was changed to slow them down.

Today, we use the same layout, despite far better arrangements being available, such as the DVORAK keyboard.

Instead of a carriage return lever, the computer keyboard has a return key, just like an electric typewriter. There's also function keys, to perform special jobs. Other keys provide the ability to stop, or pause programs, or quit out of what you're doing.

A small flashing square on the screen shows where the next character you type will appear. This is called the cursor.

The screen is divided into rows and columns. On an IBM compatible there are normally 80 columns and 25 rows of characters. Smaller home computers have only 40 columns.

Sometimes the screen display will scroll, either up or down to allow a new line of text to be displayed. Each time the display scrolls, an entire row of characters moves off the screen.

Computers are also able to display graphics, by dividing the screen into individual dots instead of characters. Each of these dots is called a PIXEL or Picture Element.

Graphics

Today's home computers produce stereo music, with stunning cartoon quality animation and pictures. These pictures are often referred to as computer graphics.

How are they made?

The computer screen can be divided into small dots. These are called PIXELS, or Picture Elements. Each of these dots corresponds to a BIT inside the computer's memory. By switching BITS off and on, animation is achieved.

The number of PIXELS displayable on the screen is called the resolution. Sometimes several resolutions are availa-

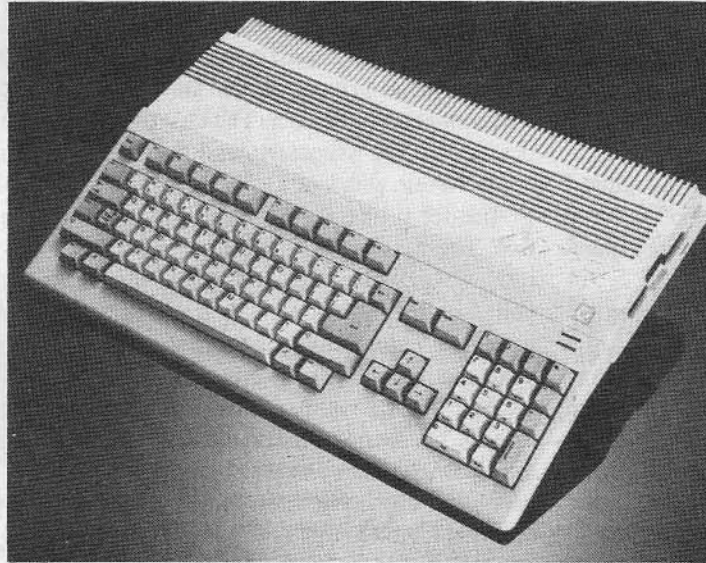
ble, normally expressed as the number of dots horizontally by the number of dots vertically.

A Commodore 64 has a 320 x 200 pixel graphics display, using two colours in every 8 x 8 square. This mode is called hi-res mode, or high resolution graphics. In another mode, greater colour availability is possible by halving the horizontal resolution to 160 pixels.

The Amiga has many graphic modes, up to the very edges of your screen. Working within a set border, you can display an image consisting of 640 x 400 dots or pixels.

Horizontal measurements are often referred to as x and vertical measurements as y. Therefore a computer with a x resolution of 600 dots, allows 600 pixels horizontally across the screen.

Using a special graphics chip, small shapes may be defined using sprites or MOBS (Movable Objects). These might only be about 24 x 21 pixels in size, however they vary from one computer to another. They move independently of the main picture. Furthermore, collision detection between different sprites is possible. Many games use these facilities. Sprites are one of the most powerful fea-



tures available to the games designer. Most arcade quality computers allow at least eight, if not 16 different sprites on the screen at one time.

A basic colour computer can generate around 16 colours. More powerful versions also allow a variation in the hue or intensity of each colour. The Amiga range facilitate up to 4096 colours. In most of the available colour resolutions not all of these colours can be used at once. So the 4096 colours are referred to as the palette.

With such powerful graphics facilities, it is no wonder that computers like the Amiga are finding their way into the advertising world. Large companies also use the Amiga for presentations about products, or for training staff.

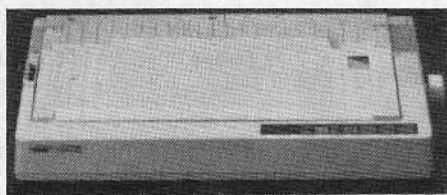
The cost of producing computer animation with music is far cheaper than video.

Pictures may be recorded by computers digitally. Using a video camera, the image is turned into a series of dots that are either off or on - corresponding to the computer's ability to store information. The resulting picture looks very similar to newspaper quality photographs.

Music

Computers can synthesize music in much the same way as an organ or synthesizer. Sound is formed by vibration. This action can be simulated in the computer, along with the timbre and pitch of each note. More powerful machines have several voices enabling them to play a number of different notes simultaneously.

Music can also be recorded into the computer's memory digitally, just like a Compact Disc. The result sounds very much like normal music played from a



record or cassette. The quality of digitised music depends on the amount of memory used to store the sample. The more memory used, the better the quality.

It's also possible to connect an external keyboard to the computer using a MIDI interface. Information sent from the keyboard as music is played is then able to be recorded using the computer.

Later on, the music can be replayed and a new track recorded over the top of the first. Professional musicians make strong use of these facilities.

Computers cannot write the music for you, but they can sure make writing music far less laborious. A single musician has at his disposal many powerful facilities normally only possible in expensive recording studios.

Software is available enabling budding musicians to cut and paste notes onto a stave. The result can be played on the computer or printed out into sheet music.

Getting ink to paper

Most popular is the dot-matrix printer. Characters, or letters and numbers are formed by a series of dots placed close together. The result can vary from barely readable to virtually perfect letters.

Most users will be familiar with the quality produced by a daisy-wheel printer. Not unlike your average typewriter, this device produces each letter by stamping the required character against a carbon ribbon. An imprint is then made on the page that is well formed. Daisy-wheels, or golf-balls, may be interchanged to provide a variety of typefaces.

In practice this method produces what is referred to as letter-quality type writing. Some dot-matrix printers are able to come close to this quality by overlapping the dots, and doing a double pass over

each letter. The resulting characters are called near-letter quality.

Various other forms of printing have come and gone over past years. These include thermal printing which burnt the letters onto special paper. The cost of paper was far too expensive, and it tended to deteriorate with age.

Ink-Jet printers are another alternative. These are very quiet, very fast but rather expensive. Ink is literally propelled onto the page, and each dot goes to form a letter in much the same way as a dot-matrix printer.

The latest development is the Laser Printer. These are based on the design of a photocopier. They work by etching the design of each character or dot onto a drum which then prints the entire page in one fell swoop. Quality is excellent, especially with use of a page description language such as PostScript. This language enables each character to be perfectly drawn by the laser.

The result is close to typesetting quality. Thus many publishing houses use laser printing to save typesetting costs and speed up production time. This very publication was produced using a laser printer.

Which printer do you need? For home use, a dot-matrix printer is the most flexible and least expensive choice. Because of the way in which each character is formed, a similar process may be used for creating graphics output.

Daisywheel printers are confined to the available typefaces. However, the quality of output is higher. Thus, they're more suited to the business environment.

The process of printing graphics is often referred to as a high-resolution screen dump. In this operation each dot displayed on the screen in a bit-mapped display is printed on the printer correspondingly.

More expensive dot-matrix printers work faster. The speed is normally expressed as Characters Per Second or CPS. Around 80 CPS is average, with many brands now arriving with 120 CPS standard. In low-quality draft mode a few

will even reach as high as 300 CPS.

Daisywheel printers are inherently slow, due to the larger number of moving parts. They vary from 30 CPS to 90 CPS on ultra-expensive models.

Several printers available will handle colour. Since many computers are colour capable, this may seem a logical choice. However, in practice colour printing tends to have little day to day use. It is possible to print onto special plastic suitable for overhead transparencies.

Colour business reports also attract some buyers. For the hobbyist, a few smaller models will produce excellent reproductions of screen picture.

Using a printer

Most printers are equipped with a few simple buttons and levers which work in much the same way on all models. On the front panel, there are normally at least three buttons. These are Line Feed, Form Feed and On-Line.

To print information, the printer must be ready to listen to the computer. We tell it to listen by pressing the On-Line button. A small green light will switch on, indicating that all is well. A red light means a problem.

Most likely there is no paper, or it is badly positioned.

Line Feed moves the paper up one print line. This is useful for careful positioning, or ejecting printed pages. Form Feed moves the paper one entire form or page. Normally this is used to advance to the top of the next form to start a fresh print job, or to eject the most recently completed page.

On the left hand side of the carriage is a lever to switch between tractor and friction feed. Tractor feed is where the paper is fed by sprockets that grip holes along the side of each page. Friction feed is the same as a common typewriter, where the paper is held in position by pressure on the roller.

Tractor feed is normally used for continuous stationary. Friction feed is best for individual pages. ■

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Care of your Commodore 64

You've paid dearly for your treasured home computer, here's how to keep it looking and working good. With a little extra care, your Commodore 64 should give you many years of faithful service. We still have a few old C64s plugging away here at the office. Of the ones that haven't shorted out when one of our writers spilt coffee on the keyboard, they all work great.

There's a few basic areas to watch out for that will protect your computer and the information on it from damage. There's no need to be fanatical about these things, but it does help to keep a watchful eye on problem areas around your set-up.

Static

Have you ever walked through a building with synthetic carpet and a dry air conditioned atmosphere? Often you'll receive a nasty 'bite' as you reach for the door handle on the way out. Try the same thing in low lighting and you'll be amazed at how big a spark can be generated.

A similarly sized 'bite' can ruin disks of information, send your C64 into a state of no return, or just glitch memory enough to damage some of your work. Anything magnetic is a likely candidate!

Static electricity is caused by a surplus or deficit of electrons on a charged body. Problems occur when the body in question is yours.

Normally any static charge you build up is slowly dissipated into the atmosphere or lost to an earthed object upon contact. The dryer the air, the longer a static charge will remain upon you.

Solutions

Ensure that you are at the same potential as your computer before you touch any part of it. Or simply put, that you're on mutual ground. For example, touch the metal cabinet of your video monitor or some other earthed object such as the kitchen sink. Avoid picking up the static charge in the first place.

Static electricity is generated when two different materials are rubbed together. Shoe soles on carpet, trousers across upholstery, plastic rubbed with silk are examples.

Instal your computer in an area with vinyl or wood flooring. Avoid carpet (particularly synthetic) like the plague. Carpet treatment chemicals are available for static reduction.

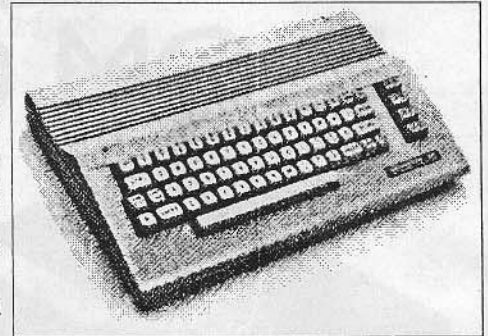
But seriously folks, on the whole C64s are pretty good when it comes to static. So unless you're in a particularly charged atmosphere, don't give it a second thought.

Dust

The cleaner's nightmare. It gets on and into everything, keyboards included. Switch contacts don't like it. There isn't a lot you can do about this one other than cover your computer when it's not in use and keep it in a relatively dust free environment.

Covers are available from most computer retail outlets for popular home computers. If you're having trouble finding one to fit your brand, contact Computermate on (02) 457 8518.

Smoke is also in the danger category. A smoke particle is about one quarter the size of a typical dust particle. Of similar size is the fingerprint left when the magnetic surface is touched by human fingers.



A human hair, dust particle, or other foreign object can render a portion of a disk unreadable.

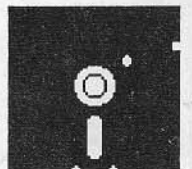
Other types of stray matter such as food should be kept well away from your keyboard. A few odd crumbs under key switches can render vital keys useless. Don't be afraid to vacuum your keyboard every so often to remove extra build-up from poor eating habits.

If all else fails, keyboards can be easily cleaned. Take your time dismantling them, there are a lot of screws. Wipe with a damp cloth, and spray PCB cleaner or anti-dust/static spray.

Disks

As a general guide, do not expose floppy disks to the following: heat, magnetic fields, bending or other physical violence, dust, and greasy fingers. Avoid touching the bare surface with your fingers. Sneezing on the same area is a definite no-no. Never use them as a coffee mat, or frisbee!

Disks become less reliable with use. Some sources suggest 25 to 30 hours of actual rotation. Keep backups and relegate heavily used disks to non-vital jobs after they have shown you long and faithful service.



Disks do shrink and expand slightly with the rise and fall of the temperature. Don't use a disk that has recently been roasting in the hot sun. Allow it to cool down to room temperature first.

Heat with the disk drive may cause inconsistencies. Make sure it is well ventilated, with easy air flow around the cabinet. In some instances it may be necessary to install a fan. Dick Smith stores sell a unit which is well suited to the job.

If a disk becomes swamped in coffee or beer, don't panic! If the data is vital you may still be able to get it back. Remove the disk from its casing, and allow to dry naturally. Avoid touching the surface - hold by its edges.

When everything returns to normal, replace in a new cover, and give it a whirl. You may be surprised just how much you recover. Don't be impatient though - wait until it is thoroughly dry.

Heat

Your computer consumes electricity. Due to the laws of thermodynamics, this electrical energy is turned into heat. Energy can't be destroyed or created. It may

only be transformed from one form to another.

Some silicon chips produce more heat than others. The VIC-II chip and ROMS are the worst off - especially if you have memory expansion, extra cartridges or a printer interface. Constant heat and cold can cause chips to become unseated. Just give them a firm press until you hear them click into place. They're pretty robust, so don't be too afraid to give them a firm push.

Don't impede the air flow to the computer's already small ventilation holes. Always put the machine on a hard flat surface, never on a blanket or thick table cloth that could reduce the air flow. Keep the computer away from sources of external heat - reading lamps, sunlight, radiators.

Avoid operation when the temperature is extreme - especially during summer. Use a fan to ensure a steady air flow over the machine and keep operation to as short a time as possible.

Now, if you think this sounds a little extreme, remember, it's your computer that's going to suffer heat stroke and

most commercial installations are air conditioned.

Another problem can be humidity. Should the humidity levels reach 100 per cent, moisture will condense on any available surface at or below the temperature at which dew forms.

If this happens, corrosion can cause problems which often don't show up until it's too late.

The sorts of problems caused by condensation include unpredictable keyboards and intermittent failures caused by poor contacts in the multitude of metal to metal connections in the computer.

This problem is more significant in seaside areas due to airborne salt. The solution to this one? Avoid leaving your computer in a cold damp area. Make your computer room inside a warm dry house, avoid garages and other outbuildings.

I don't have to elaborate, but this is a terrific one for the computerist who is not well received by his better half in the lounge and looks destined for the chook shed.



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Word Processing what's it all about?

If you're used to watching the finished product clatter its way through your typewriter, word processing may appear overwhelmingly complex. Andrew Farrell explains some of the intricacies.

I arrived early to school one morning. Nothing unusual about that, I used to aim to get there in time to spend a good hour behind the keyboard. I would either be programming, or playing the latest adventure game.

This morning I was completing an English assignment. As the first bell rang the last few words were being added. Then I kicked back to admire my handiwork, and as I stretched out, removed the power cord from the wall. My assignment was completed at lunch time. I lost the entire morning's work.

Since then I've lost countless more files, hours of typing, and dozens of ideas. All because I didn't learn to save my files regularly. The word processor I use now automatically saves after a certain number of keystrokes. I'm a very content word processor user.

I hate writing by hand. It's inefficient, slow, messy and prone to mistakes. The golden rule is that a word processor on computer can save you time, and make the end result better providing you take care.

Commodore 64's forty columns is by no means the ideal working environment. However, it's a big jump from the 23 column days of the VIC 20. Many packages allow you to preview your document in 80 columns - which is roughly the width of an A4 sized page.

Editing of your document is done in the computer's memory. A portion of what you've entered is displayed on the screen. It's like looking through a window at a field. By moving around you can change what part of the field you can see.

Using special keys, it's possible to travel up and down the page, and along each line of text. Once in the right spot you can add words, move sentences around, or delete a mistake.

If you're careful, the first copy that hits the printed page will be the one you keep. Presentation is a cinch.

Supposing you want your text perfectly aligned down the left and right margins of the page. You simply switch on a function known as full justification. The result is a like a book. Some word processors enable you to have multiple-columns. In fact, you can take your text

A word processor on computer can save you time, and make the end result better, providing you take care.

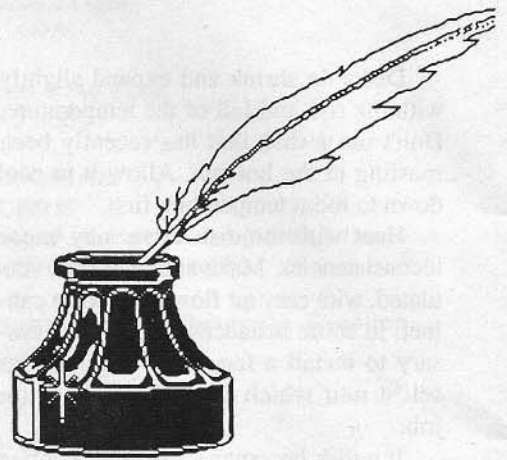
from the word processor and put in into a desktop publishing package, add a few pictures and produce your own club newsletter or a complete magazine like the one you're reading now.

Word processors are often found in the office as dedicated computers that do nothing else. On the Commodore 64 a word processor is just a program like any other.

In deciding the one that's right for you, try answering the following important questions:-

- Will it work with my printer?
- If it does, what if I buy a different printer later on?
- Do I need a spelling checker?
- Do I have any special needs for type styles?
- Can I copy text from one document to another?

There's a few to get you started. If



you have a particular application in mind, be sure to nut out what you need. For example, if you wanted to write a book, chances are you would have to break the job down into chapters - using one file on the computer for each.

When you print your labour of love, you'll want the page numbering to start from the right place, even though it may be at the start of your document that page 50 arrives. Some word processors always number pages starting at one in each document.

Or perhaps you write for a newspaper and need to send your file to the local office via modem. Some programs save their files in PRG format which is not suitable for modem transmission. Can it also be saved as a plain text or SEQ file?

Once you narrow down your specific requirements, it's time to look at all those niceties that make your word processor more pleasant. Pull down menus may be the liking of some, and the curse of others.

It's largely a matter of personal choice. Try out whatever you intend to buy, perhaps bash in a quick few sentences and print them out to see how easy it is.

Of course, there's nothing like making an educated guess. Here comes the education, the guessing is up to you.

Word Processors for the C-64 & C-128

Now you know what a word-processor does, here's a guide to what's out there. Eric Holroyd, a regular contributor to the *Australian Commodore and Amiga Review*, dragged out all the old manuals, past reviews and current preferred programs to produce this overview.

Many fine word processing programs have been written for the C-64 during its amazing life-span and we've covered most of them in our pages over the years and months. The following rundown covers the more popular word processor software. They're discussed here in alphabetical rather than preferential order. Wherever possible I've included details of a C-128 version.

Easy Script

The first word processor I ever used and although it's not all that "user friendly" by today's standards, it does offer a surprising array of features.

Headers, footers, page numbering, underlined, boldface, italicised, expanded text, subscript and superscript etc are all available and are used via a system of "embedded" commands. What this means is that you first type a special keycode sequence (it's not shown in screen preview or printed), then the code for the feature you want.

Everything typed from then on will be in that mode until you type the keycode to turn it off again. Sounds cumbersome but it's not really.

To learn more about how to use *Easy Script* see the tutorial in this Annual.

There's a spell checker available named *Easy Spell* which works in conjunction with *Easy Script* but it's terribly slow and I only ever used it once for that reason. If your

needs include a spell checker I'd suggest you look at one of the other programs now available.

Many C-64ers have stayed with *Easy Script* and have no desire to change, probably feeling that they've already got a good word processor (true) and don't want to go to the trouble of learning how to use another one. Paul Blair once estimated that "half-a-million copies have been sold and a further one-and-a-half million copies moved in mysterious ways."

Available from most Commodore Dealers, under \$99.

Fleet System, The

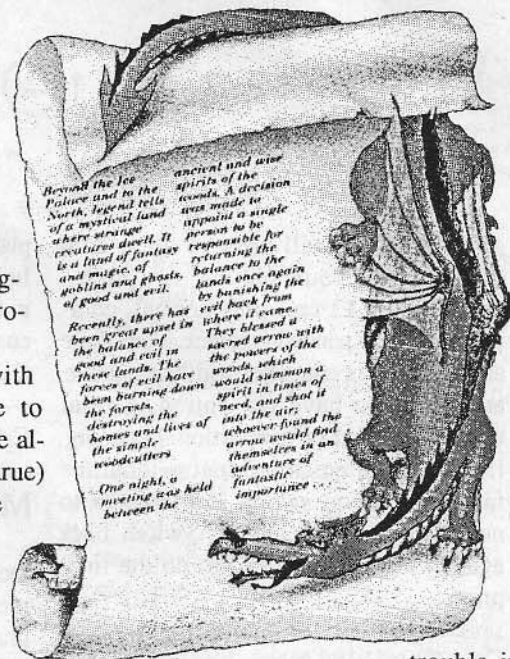
I reviewed this in the June 88 *ACR* and in fact am using the C-128 version to write this article. I said then that it's "a powerful program with all the features you'd expect plus a lot you might not" and that just about sums it up.

Fleet Filer, a no-nonsense database/filing system, is included and you may import data from the Filer to the word processor to include in your document. I find this one easy to use as it uses the logo key and the F- keys as "triggers" prior to selecting the feature you want from a screen menu.



Both C-64 and C-128 versions use "drop-down" menus and windows which make for easy function selection. Spell checker and thesaurus are included in both versions and C-128 owners having the RAM expansion may put these functions into RAM for virtually instant spell checking or look-up of synonyms/acronyms.

Easy Script users would have no



trouble in moving up to this one as many of the commands are similar and it's easy to learn.

Distributed by ComputerMate. RRP C-64 \$69, C-128 \$89.

Fontmaster 2

A truly amazing, and extremely powerful word processor which lets you use up to 33 different fonts from its own library (more in the C-128 version) at any time and at any point in your document. It's produced by Xetec, whose Super Graphics Senior printer interface lets users of other word processors use two of these fonts plus NLQ in documents.

I'd reviewed the C-128 version in *ACR* of January 88 and use it a lot as, in addition to the font capabilities, it lets you import *Print Shop* graphics into your document and flows the text around them. Very handy for all kinds of "Desk Top Publishing" jobs like invitations, fliers, little posters etc. Also, being a trumpet player, I designed a letter head with that instrument and some musical notes which all prints automatically around my name and address when I load in my "letter blank" file from the data disk.

The 64 version doesn't work with

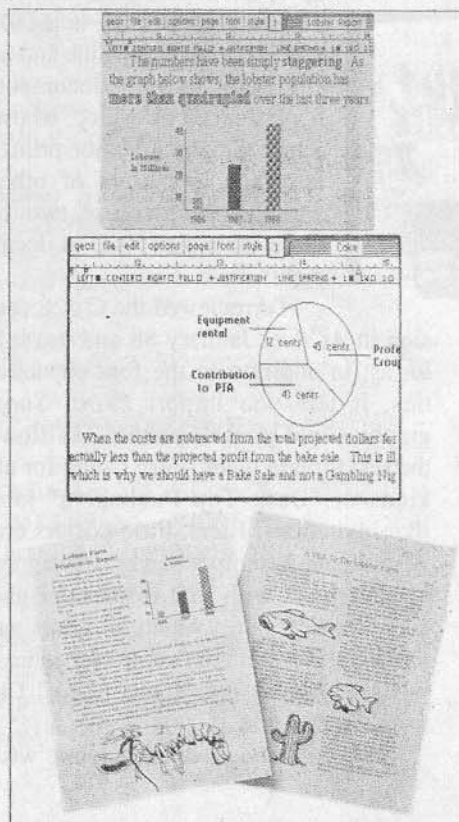


graphics but it will print in up to four columns in your choice of pitch (10,11,12 or 13 cpi) plus normal, compressed and expanded typeface. Thus there are 12 different character widths available, and you also have the option to print them in normal or proportional spacing. If you want a quick printout without the fancy fonts you switch *Fontmaster* to normal dot matrix mode. Switch back again when you're ready to do the final print.

Distributed by ComputerMate. RRP C-64 \$89, C-128 \$99.

Geo-Write Workshop

Part of Berkeley Software's excellent suite of productivity software using GEOS (Graphic Environment Operating System). This one lets you use different fonts, or typestyles, and uses a system of pointing and clicking with the joystick or mouse button to use various features. It's a WYSIWYG program (screen dis-



plays exactly what goes to the printer). Incorporates many of the features found in the other word processor software discussed here and it's a must for dedicated GEOS users.

Distributed by ComputerMate. RRP C-64 \$89, C-128 \$119.

Mini Office II

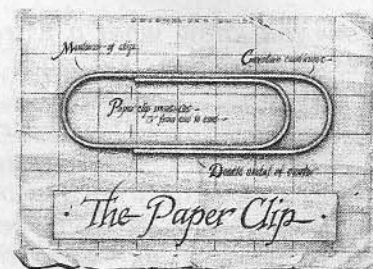
Andrew Farrell covered this one in October 87 *ACR* and it deserves another mention now. It's part of a suite of programs which includes: Database, Spreadsheet & Graphics, Word Processor, Communications, Label Printer. The word processor has Edit, Print, Preview, Cut & Paste, Search & Replace, Merge and several other features as well as a useful preview option. Files may also be saved in standard ASCII for transmission by modem. Like *Easy Script*, this one uses embedded commands for formatting of text. Easy to use and a nice suite all round.

Distributed by Pacronics, RRP \$54.95 (disk).

Paperclip 2

Phil Campbell reviewed this for C-128 in *ACR* of Dec 86 and thought it "an advanced professional word processing system with every option you could ever require". It offers WYSIWYG screen preview (underlining, bold, italics etc are shown on screen just as they'll be printed) and has a built-in terminal program module which lets you log on to bulletin boards, databases and other computers from within the word processor itself.

Incidentally, Phil coined the alternative acronym WOTSIPOP (what's on the screen is printed on paper) which he prefers to WYSIWYG (what you see is what



you get) on the basis that the acronym is more pronounceable. Andrew Farrell (I think it was him anyway) replied with an acronym of his own: WOTSIWHTP which translates to "what's on the screen is what hits the paper." Neither of these alternates have yet been adopted as an industry standard however so don't commit them to memory yet!

Distributed by ECP. RRP C-128 \$34.95.

Paperclip 3

Adam Rigby wrote about this in *ACR* of May 88 and he felt that it was "probably the best he knew of to date for the C-64/C-128". His only complaint was that he couldn't move the cursor one word at a time or delete one word at a time.

It's all menu driven and Adam noted that the F7 key brings up the main menu where you select from New/Load/Save

Document, Directory, Search Text, Search & Replace Text, Print to Screen or Printer, Spell Check, Telecommunications. Call up one of the functions by scrolling to it with the cursor keys and press return. Easy!

Sub-menus work the same way and cover every imaginable feature:- Full screen editing, insert/delete, move, copy, global

Communications Options	
Baud Rate (BPS)	300
Parity	NONE
Word Length in Bits	8
Duplexing	FULL
Text Buffer	Capture
XON/XOFF Handshaking	Enabled
File Transfer Protocol	Printer C1
Modem Type	Modem 300/1600
RS-232 Control Signals	Normal
Communication Type	ASCII
Auto-Line Feed	Off
Line Feed Generation	On
Backspace Code	8
Form Feed Response	Line Feed
Bell Response	Beep
Reverse-Field Printing	Disabled
Control Characters	Visible
Clock Display	Clock #1
Set Clock	

search/replace - Edit text blocks by character/word/sentence/line with full wildcard - start or end of word matches - move/delete/add columns - up to 52 user-defined macros - text centring/justification/left or right alignment.

Printouts may be in NLQ (Near Letter Quality), proportional print, double and triple spaced, and may have Roman or Arabic page numbering.

There's a built-in 40,000 word spell checker which is user-expandable and even an outliner. This is a feature I find invaluable as I use a dedicated outliner called *Thinking Cap* (see my review in ACR Oct 87) for preparing articles, presentations and speeches etc. Simply put, this lets you note down subject headings as you think of them, then go back and expand on each subject in detail. You finish up with a printout of things to speak about, with all the facts nicely organised.

Paperclip 3 has both C-64 and C-128 versions in the same package, said Adam, and he noted several useful and powerful features in the C-128 version such as 80 column screen handling and a special video preview mode where you see 50 lines of text.

The 1750 RAM expansion unit is supported here and lets you put the dictionary into RAM for use as an interactive spell checker which vets your work as you go. The 1571 drive's Burst Mode is supported too so you get super fast data transfer too (if you don't have the RAM expansion your normal spell checking is speeded up with this function anyway).

Distributed by ECP. RRP \$89.95.

Pocket Writer

Previously known as *Paperback Writer*, this is a full-featured and very capable word processor. Its screen display has seven lines at the top which show Status and Help information. In EDIT mode the Commodore logo key (C=) displays in this area all the functions available as well as advising you that the Escape key

lets you access the wide range of text formatting options and the Help key gets you more detailed help.

Formatting text is a breeze, just use the CTRL key in conjunction with the feature required, ie CTRL/B gets you boldface.

You may load either SEQ or PRG files which means of course that files created in other word processors may be imported. Many of the other word processors discussed here have that same feature.

A list of items within your document may be sorted alphabetically by first highlighting the area then pressing CTRL/S. A useful feature.

Most C-128 word processor programs let you work on two documents at once, ie you may have two documents in memory at once so that you may work on one and refer to the other. *Pocket Writer 128* has this feature and you switch between them with a keypress.

The comprehensive manual is easy to follow but almost redundant in both C-64 and C-128 versions as the on-line help lets you use the program without needing to refer to it.

Distributed by Imagineering. RRP C-64/C128 \$89.95.

Super Script

The successor to *Easy Script* and more friendly to the user. It has a menu system from which you select the feature to be used or you may type just

the initial of the feature (L for Load, U for Underline etc).

A wide range of printers is supported, there's a pretty good spelling checker included and there's a built-in calculator with five functions. Proportional printing is supported, which means that less space is allotted to the letter "l" than to "w" which makes sense anyway and improves your printouts no end.

Super Script lets you define a number of keys as "hot keys" to perform a predetermined function. For instance, instead of saving a special file on your data disk to load in as a letterhead you simply assign all the information (name, address, phone number etc, plus where on the paper you want it printed) to one of these keys and save that definition to your "defaults" disk along with your printer

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type etc. As you must load your defaults disk for every word processor session all your personalised hot keys will be ready and waiting.

This hot key system is known as defining a "macro", which is an acronym for (M)icro (C)omputer (A)utomatically (R)epeating (O)perations. Thus you may define any commonly used phrases to single keystrokes for ease of entering.

I know of a *Super Script* user who has defined his keys to print boxes using Commodore graphic symbols. These are then used in compiling in-flight menus for one of our major airlines which are photo-copied and then laminated in clear plastic. Nice to think that the humble (??) C-64 is doing a thoroughly professional job in conjunction with this software.

The C-128 version uses either 40 or 80 columns and can be in memory at the same time as *Superbase* so as to call up data from a database to include in a document.

Available from most Commodore dealers.

WordPro 128

Sold under the "Better Working" label from Spinnaker software in the USA, this is an integrated productivity package which comes complete with *FilePro 128*. As the title implies, it's dedicated to the C-128 and is a good-value package.

WordPro is easy to learn and use and has all of the desirable features mentioned elsewhere. It will also print in double columns and offers proportional print for all output. As this is a difficult thing to show in a screen preview of a document (*WordPro's* manual says it's impossible) it's not a WYSIWYG word processor but does have a screen preview showing almost what goes on paper.

Text formatting functions include tabbing, paragraph indenting and margin setting as well as the normal things like underlining, centring and highlighting etc.

Screen display is in 80 columns (naturally) and you do need an RGB monitor.

Documents produced with *WordPro 128* may be of unlimited length as document chaining is supported (one document loads the next one to be printed from your work disk) so if you're rewriting *War and Peace* you're OK with this one.

There's a 100,000 word spellchecker which may be customized with your own words too. This is useful as most professions have a vocabulary peculiar to that field and it's a bit pointless for (say) an optometrist's spell-checker to have a metallurgist's words included. Far better to customize the dictionary to suit.

FilePro 128 is quite a sophisticated database program which allows fast and easy data entry along with easy retrieval of information. It's useful for organizing data such as social club records, mailing lists, record collections etc. It stores and accesses up to 4000 records per file with search and sort functions of up to 20 different variables.

Using *FilePro* you may print mailing labels, inventory tags, information labels and much more. You may also print "form letters" automatically with individual addresses.

This is a good suite and quite capable for use in a small business, social club or other organisation where professional quality along with ease of use is required. It was voted "best of 1987" by *Commodore Magazine* in the USA.

Distributed by Pactronics.

Wordwriter

A dedicated C-128 word processor from Timeworks which is part of an integrated suite which lets you use the *Swiftcalc* spreadsheet and *Data Manager* on a "mix 'n match" basis.

It's a very good, extremely userfriendly system with pull-down menus and on-line help, it's all in 80 columns and it works beautifully. I found it very easy to

learn and use, and its integration with the other programs is a great feature.

As with most good Commodore-specific word processor programs you may set the screen colours to your own preferences. This is something the dedicated (and expensive) word processor machines can't offer as most of them use a green or amber screen monitor anyway.

Available from some Commodore dealers.

Write Stuff, The

Reviewed by Adam Rigby in the June 88 issue of *ACR*, this is a "Userware" program, ie it's distributed by people who use it and whoever acquires a copy sends payment to the author. As the whole thing only costs \$30 including the manual and keyboard overlay it's very reasonable. Adam liked it and found it easy to use.

Features include: Boldface, italics,

The Write Stuff

double width, condensed, emphasized and NLQ type. Subscripts, superscripts and underlining too. Macros may be user-defined and there's a list of already defined macros built in. For instance, with "macro" turned on, just pressing the space bar puts "Sincerely yours," onto your letter.

It doesn't have a spell checker but does have a screen preview in hi-res 80 columns.

Distributed by its own users. RRP \$30.

Call (08) 210-3712 if you cannot find anyone locally.

Depending on what you require in a word processor there's bound to be one listed here that's exactly right. Ask your software dealer if the program you've settled on supports your printer and be sure it has the features you want. ■

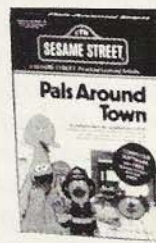
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Getting the most out of Easyscript



Easy Script is without doubt the most popular word processing program on the Commodore 64 today. It is, however, a real hassle to really get this simplistic appearing word processor to go do its stuff. In past months, we have published a series by Eric Holroyd on getting the most out of Easy Script. Here we present them as one complete article for your reference, and for those who missed earlier instalments.

His notes are a valuable extension to the somewhat cumbersome user manual.

Customising

First of all I customised the program to suit my needs. I used the Isepac copier cartridge to make a quick-loading version that didn't bang the heads around on the drive whenever I loaded it. (Any other good snapshot program will work - such as the Freeze Machine, or Expert Cartridge. Making a backup for your own purposes is lawful. - Ed.)

To capture it with Isepac I first loaded the program in up to the title screen where you need to make the various choices. First choice is for Text Width and you're prompted to choose from 40 to 240 columns. I chose 80 to suit the standard printout on normal paper, then went to (D)isk or (T)ape where I chose (D) as I'm working from a disk drive.

The final choice was the most difficult as I hadn't a clue what the manual was talking about and didn't understand the choices offered. I experimented and found that by choosing "0" for CBM printers I could get EasyScript to work on my equipment of: C-64 with 1541 drive and Star Gemini 10x printer with Xetec Super Graphics Senior Interface.

If your equipment is different to this then my suggestions may not work for you, but at least they'll give you a clue as to what some other dummy did when trying to make sense of a decidedly user unfriendly manual.

Having done all that, I progressed to

the actual working screen and set my choice of screen colours. This is done by holding down the CTRL key and pressing 1 to change the cursor colour, 2 for the screen colour and 3 for the border colour.

Set-up file

Once I'd got that organised I set up a file called (appropriately enough) "setup". The first thing to learn with EasyScript is that the F3 key puts a reversed asterisk on the screen as a marker for a "comment" or "instruction" to the program. Anything following this will appear on screen but will not print out. Using F3 then, here's what my setup file looks like:-

```
*nb"setup" (return)
*0=0:1=1:2=2:3=3:4=4:5=45:6=66:7=64
(return)
*lm5:rm75:pl66:tl63:ju1 (return)
```

(don't forget that pressing the return key will erase anything to the right of the cursor in EasyScript and some other word processors).

The first line is the name of the file for identification and saving. The second line sets up codes for "embedded commands". The third line shows layout settings of:

Left Margin at column 5 and Right Margin at column 75. Page Length is 66 lines and Text Length is 63 lines. The ju1 simply means that the right hand side of the text will be "justified" or aligned vertically with no ragged edges.

Back to the second line with the "embedded commands" now. These numbers are used in conjunction with the "Escape" command which is entered by pressing the F1 key then the Up Arrow key (next to the Restore key). This will put a reversed capital E on the screen to signify Escape.

This is followed by whatever combination of codes you need to achieve the printing effect that you want.

Underlining

For instance, underlining was a

source of bewilderment to me until, after countless phone calls to Commodore's software support department, light began to appear at the far end of the tunnel.

Thanks to Gary Mason at Commodore I learned that, to underline on the 10x all I have to do is send the command Escape, CHR\$(45),CHR\$(1) to turn on underlining and Escape, CHR\$(45), CHR\$(0) to turn it off again. Incidentally, Escape is CHR\$(27) so you might also see the above commands written as 27/45/1 and 27/45/0. Now, to send them using my setup file all I have to do is press the following key sequence:

F1/Up Arrow/F1/5/F1/1

and everything that follows will be underlined. Try it for yourself and see. Then enter F1/Up Arrow/F1/5/F1/0 to stop underlining. In simple terms, if you're typing a letter and want a sentence underlined just type the first sequence before the sentence you wish to underline then type the second sequence after you've typed the sentence. Easy.

Fonts

Using the Xetec Interface I can print in NLQ (Near Letter Quality) by pressing F1/Up Arrow/F1/1 and from then the interface's NLQ font will be used until I type F1/Up Arrow/F1/0. From now on in this article Escape will be taken to mean F1/Up Arrow.

The Xetec Interface is capable of storing two selectable fonts for use in your letters and documents, and having followed the instructions to store the fonts you call them up with the embedded commands Escape/F1/2 for the first selected font and Escape/F1/2 for the second selected font. In both cases Escape/F1/0 will turn the features off.

Escape/F1/4 returns you to the normal Dot Matrix print or Draft Mode that your printer normally, uses and if you wish to reset the printer to its normal start-up settings and cancel every command you've sent in your document you simply enter Escape/F1/7. If you check the second comment line above you'll

see that 7=64. So what we've actually sent to the printer as a reset command is ... what? Figure it out for yourself and I'll come back to that point in a minute when you've had a chance to think about it. Don't worry, all of this took months to penetrate my skull, as I'm no Einstein.

Here's a couple of commands re print size:

Escape/F1/6/F1/1 turns on Pica pitch printing.

Escape/F1/6/F1/0 turns it off.

Escape/F1/6/F1/2 turns on Elite pitch printing.

Escape/F1/6/F1/0 turns it off.

Other printing commands that can be embedded within the text (ie displayed on screen but not printed on paper) are also sent in combination with the Escape code of F1/Up Arrow but the codes following Escape are not reversed, in other words you don't press F1 before entering them. Here's how:

Escape/E turns on Emphasized print.

Escape/F turns it off again.

Escape/G turns on Double Strike print.

Escape/H turns it off.

Escape/E/Escape/G turns on Emphasized/Double Strike.

Escape/F/Escape/H is off

Escape/4 turns on Italic printing.

Escape/5 turns it off.

Escape/F1/Shifted [turns on Double Width print

Escape/F1/Shifted] turns off Double Width print.

Escape/F1/Shifted (turns on Reverse Video print

Escape/F1/Shifted) turns off Reverse Video print.

Try experimenting with these and see if you can work out the embedded command to do Emphasized, Double Strike Italics.**

Incidentally, the thing I said I'd come back to was CHR\$(27),CHR\$(64) which is Escape/F1/7 to reset the printer to start-up state. The 64 is actually ASCII for the commercial "at" sign (the key between the "P" and the "" on your keyboard). Maybe all this gibberish is starting to come together now?

The setup file above was saved by pressing the Isepic capture button and

following that program's directions so that whenever I load my *EasyScript*, it's only 72 blocks long and I've made it the first program on all my *EasyScript* data disks. By doing that it loads with load """,8,1 or just by pressing """ if you have a Cockroach TurboRom fitted. Once loaded I change the word "setup " to whatever the new document will be called and start to work on it.

Centring

I usually use another "comment" to centre the title of the thing I'm writing and this is: F3/cn1; (note that the case of the centring command doesn't matter, but you should use a semi-colon rather than a colon on this particular command). Then type the title to be centred followed by F3/cn0 to cancel the centring command. If you don't cancel it the entire document will be centrally aligned down the paper. If you wish to underline the centred title just include 27/45/1 after the semi-colon and 27/45/0 before the F3/cn0.

**Escape/E/Escape/G/Escape/4 for Emphasized, Double Strike Italics.

Document format

Document format will vary widely dependent upon the kind of work you're doing, but you'll mostly be using 66 line paper (US letter length) or 70 line paper (A4). The setup file from Part 1 allows for 66 line paper with an actual text length of 63.

You may like to vary the text length to accommodate bigger top and bottom margins to display headers or footers, page numbers etc. and we'll be covering that later in this article.

To make your text more readable you make like to vary the line spacing. This is done with *sp1 to give one blank line between text and *sp2 for two blank lines. If you want to return to normal then *sp0 will do it.

Here's how to set up a letterhead to make your letter writing easier. Load your "setup" file, change the "nb" comment to "letter blank" then cursor down to the next blank line. Enter *ra1 (for Right Alignment) then your name and address in the following format:

John Q. Citizen
17 Apple Street
Maryville NSW 2002
Ph (02) 324-5678



Press Return to give a blank line, then enter XX XXX XX (for date entry later), press Return again then enter *ra0 to cancel right alignment and enter "Dear XXXX,".

If you now do a video preview with F1/O/V you'll see the address at the right hand side of the screen when you scroll the viewing window across. It'll probably be a bit ragged and the way to line it up so that there's a nice neat vertical line at the left of the address is to use shifted spaces to "pad out" the lines all to the same length.

Cursor back up to John Q. Citizen and across to the end of the name. Hold down the shift key and press the Spacebar four times. The next line will need three shifted spaces, the MARYVILLE line is OK as it is so go to the following line and put three shifted spaces at the end of it.

You've pressed Return, of course, after each lot of shifted spaces so your screen should show a line of Returns (the less than sign) aligned vertically. If it doesn't you've used different spacings to those in my example, but it doesn't matter as long as you now know how to adjust it.

Fix the date line the same way and video preview it all again to check how it looks.

If you now want to put the "ph" into italics as I've done on my own letterhead, then cursor to that line, and with the cursor at the start of the line, hold down Shift and press INST/DEL twice. This moves the text along to accommodate the italics command of Escape/4 as covered in Part 1. Now cursor past the "ph" and enter the cancel Italics command of Escape/5.

You'll notice that your shifted spaces have moved along four spaces but as the embedded Italics commands are not printed either to the screen in video preview or to the printer itself, then all's well.

When you're happy with the look of this page just press F1/F (for File) and the title of the document in the "nb" comment line will be saved to disk. You now have a file on your data disk which you

load in and can use every time you write a letter. The dateline is in the correct place and all you have to do is enter 17 NOV 88 for example. Change the "nb" comment to something suitable, like "Mon 20 Oct 88" and you can save it in the same way as above when you've finished writing.

Loading

To load any of your files from disk you have two options.

If you know the exact filename you can load with F1/L and enter "filename" on the status line.

If you're not sure of the name press F4 to go to Disk Mode then +\$0 to load the directory. F1/L/F2 will then scroll a listing of the directory at the status line and when the right name comes up press Return to load it. Easy!

Incidentally, you may append one file to another quite simply by loading the first one and, with the cursor on the first blank line after this document, load the second one. (It's easy to put the cursor at the end of a document, F1/G/E means Go to End).

Similarly, files may be merged by loading the first one, positioning the cursor at the spot where you want the merged file to go, press F1/I (for Insert) then load the second file. The text opens up to take the merged file.

Output was briefly mentioned above and is done with the F1/O command followed by the destination, either V for View or P for Print. If there's more than one page you should follow the "O" with "C" for Continuous and, in the case of output to the printer, an "X" if you want multiple copies. This prompts the status line to ask you to input the number of copies you want.

Disk functions

In "disk mode", which is entered with F4 as I said, and exited with Run/Stop, you have a range of normal disk functions like validate disk, rename a file, format a new disk etc. For the latter just enter "n0:diskname,id" and you'll get the familiar "Are you sure?" to which you enter "Y" or "N" as the case may be.

Don't forget that formatting a disk erases all data on that disk and that's the reason for asking if you're sure you wish to format that particular disk. It's too late

once the process has started to salvage anything if you've made a mistake. To validate, or clean up, a disk that's had lots of saving and deleting, enter "v0" press Return and wait a little while.

Renaming is simply a matter of entering "r0:newname=oldname" and press Return. To delete a file enter "S0:filename" and Return.

There are two distinct commands for loading a disk's directory. The first one displays the directory on screen without disturbing the text in your computer's memory and is obtained with F4 then \$0. The second one is the one I described above, F4 then +\$0, and is used for "shortcut loading" of files or printing out of directories for reference purposes. Printing, of course, is done with F1/O/P.

Printing

There's a lot of control available to you when printing your documents. For instance you may specify how many lines per inch you want printed with the command *lpXX (where XX is the number of lines required).

Some printers don't generate a linefeed with a Return and if yours is one of these then specify a linefeed with *lf1 in your setup file. (Substitute 0 for the 1 to turn off linefeed if you need to). Also, some printers allow you to do a Backspace and if yours is one then F1/backarrow (next to the figure 1 at the top left of your keyboard) will do it.

Pitch may also be specified with *ptXX where XX is 6,8,10,12 or 15. If nothing is specified then *EasyScript* prints at 10 characters per inch. If ever you need the English pound sterling sign then F1/\$ should print it for you.

If you decide after typing in your text in upper case that you want a certain section to be printed in lower case then use F1/U with the cursor over the first character which you wish to be printed in this way. Cursor to the last character to be treated this way and again press F1/U. The text will then change between the markers and revert to the original after the second marker.

Forced pages

Sometimes your text will work out so that a new paragraph is just starting near the bottom of a page and may only print

one or two lines before going to the next page. Under these circumstances you'd be better to make a "forced page" with the command *fp so that the new paragraph starts on the new page. You may indicate a specific point at which this is to happen by using *fpXX meaning that *EasyScript* will start a new page if there are less than XX lines remaining. This is handy if you've added a bit more text higher up in the document and aren't sure where it's all going to end up. I've used a number of Returns sometimes to "make the document fit" but that's very expensive on memory and it's far better to specify the exact number of blank lines you need with the *blXX command.

Columns

EasyScript will print your text in columns just like a newspaper if you use the Offset command *ofXX. The XX this time indicates the distance in number of characters from the left margin, ie printing will commence at the column that is the distance of the offset plus the left margin from the edge. You'll have to rewind the paper back to the top of the sheet to do the second pass.

It's worth a bit of experimentation on this one as your club newsletter or sales report etc could be considerably enhanced if printed in columns. You may also use the Vertical Offset command *vpXX where XX is the number of lines required say, on the title page of a document or the first page of a chapter. Turn it off for subsequent pages with *vp0.

There are a number of ways in which you may modify or delete unwanted text. The most common would be the Delete key itself which takes out the text and closes it up again automatically. To delete the character to the left of the cursor press the INST/DEL key. Holding it down will continue to delete characters until it's released. As they're deleted the text is adjusted so that no gap is left.

The opposite of this would be the Insert mode whereby you may enter new text at the cursor position with existing text opening up to accommodate it. Use F1/I for this mode. To delete the line at the cursor position press F1 then INST/DEL. Again, holding the keys down continues deleting lines until they're released. End the Deletion mode by again

pressing F1. Inserting a blank line(s) is done similarly by holding down the Shift key then pressing INST/DEL.

The Erase command differs from Delete in that space is left where the text had been. To erase a character simply overwrite it with a space. Holding down the Spacebar erases everything until released. To erase a whole sentence use F1/E (for Erase) then "S" for Sentence. This command erases everything to the next terminator and the text will not close up.

Exclamation and question marks are not recognized as terminators in *EasyScript*. Erase from the current cursor position to the end of paragraph marker (the less-than sign) use F1/E/P (for Paragraph) and a space will appear where the text had been. To erase from the current cursor position to the end of the text use F1/E/R (for Remainder). To completely clear the screen use F1/E/A (for All).

Sometimes you may prefer that a phrase be treated as one word when it's printed and that it all appears on the same line without being broken up onto two lines. To get this effect, make a "linking" space with a shifted space as you did when setting up your letterhead. This will be shown on screen as a block joining the words together but it will be printed as a normal space. Note however, that if you make a linked phrase which is longer than a printed line *EasyScript* will have to break it onto the next line anyway.

If you type with the Shift/Lock key down to use upper case then all spaces will become linking spaces which could result in formatting problems. The correct way to get upper case is to use F5 which results in the status line displaying "Capitals On". F5 will turn upper case off again when you're ready. Hyphenated words are treated as a single word and you may get formatting problems with these too.

To ensure that hyphenation is carried out properly use a "soft hyphen" which is inserted in the text at the appropriate place with F1/- which then comes up on the screen as a thick line. If you entered "fanfold/F1/-/paper" the word would appear as "fanfoldpaper" if it would fit on one line but if not then *EasyScript* would insert a hyphen after "fanfold" and put "paper" on the next line.

Tabs

"Tabs" are used when working in columns of figures or statistics and are indicated with F1/T (and the status line displays Set Tabs) then H (for Horizontal) after positioning the cursor where you want the tab to be. Do this as many times as you wish across the screen and you may then move instantly to any position by pressing F7 to move through the various spots you've just specified or F8 to move to the tab directly below. This is known as setting tabs at columns along a line and you may specify Vertical tabs by using "V" instead of the "H".

To work with decimals and ensure that all the points are in line you may do this too. First of all press F6 to indicate to *EasyScript* that a tab is to be decimal (status line displays "D") then set the tab normally as already indicated. To display tab positions use F1/P and normal tabs will be shown on screen with a "/" whilst decimal tabs will be "#". Vertical tabs can not be displayed. To clear tabs from a document use F1/C (for Clear) and the status line will show "clear tabs" to which you have to enter "H" or "V" depending on what you're clearing. To clear all tabs use F1/Z (for Zero all tabs) and again you must press "H" or "V".

To save a document to disk and include the tab settings simply put a "+" sign at the end of the filename. Tab settings will still be there when you come to reload the document next session.

Having Fun with EasyScript

I never found out who programmed it, or even why, but some versions will

play English patriotic music! It's the theme from Elgar's "Pomp and Circumstance", more commonly known as "Land of Hope and Glory" and is played by pressing : F1 then CTRL/3 together or Escape then CTRL/English pound.

You can't do anything else whilst it's playing but it's an interesting diversion when you're ready for a break. Anyway, that's enough jollity so let's get down to some more serious stuff. We'll start with panning.

Moving around

Panning is the term given to moving around the text continuously without holding down any keys. In other words you issue a command to move in a certain direction and *EasyScript* moves around the text for you.

An un-documented feature is the ability to pan around the screen with a joystick plugged into Port #2. This also handles well with the excellent Icontroller

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(reviewed in the May 88 issue of our magazine Australian Commo) and works in both Edit mode and in Output to Video mode. In the former you get full wrap-around, left / right / up / down and it's pretty quick too. In Output mode you get smooth left scrolling with right wrap-around. Pressing the fire-button will advance the text one line, and hold it down to scan text till you find what you're looking for.

If you have a trackball you'll find that it will probably work too. Some joysticks may cause a problem if plugged in during the load, but once loaded it should be OK.

Panning using the keyboard is done with the following keys :

F1 - Shifted Vertical CRSR - Pan up
F1 - Vertical CRSR - Pan down
F1 - Shifted Horizontal CRSR - Pan left
F1 - Horizontal CRSR - Pan right
Run/Stop - Stop panning
Shift keys - Speed up panning
Spacebar - Toggles panning pause on/off

When you pause panning you can see the current cursor position as shown by the line and column number on the status line. It's a good idea to get used to watching the status line for this information at all times as I've found it to be a help in formatting text and estimating page breaks etc.

To move around the text under your control from the keyboard use :

Shifted Vertical CRSR - Move up
Vertical CRSR - Move down
Shifted Horizontal CRSR - Move left
Horizontal CRSR - Move right
CLR / HOME - Move to top of screen
Shifted CLR / HOME - Move to line 1, column 1
Return - Move to start of next line
Left arrow key - Move to end of previous line
CTRL/W - Move to 1st letter, next word
CTRL/Left arrow - Move to 1st letter, previous word

There are also three GO-TO commands to move to a specific location:

F1/G/ XX (Return) Go to line number XX
F1/G/ E (Return) Go to end of text

F1/G/ 999 (Return) Go to maximum line number (999)

The last one is useful if you're working on a very large document and wish to know how close to the maximum you are. It's best not to work right to the maximum but to make shorter files and link them together which we'll be doing in just a little while.

In addition to panning there's another way in which you can see text quickly

F1/Spacebar Displays next screenfull
F1/Shifted spacebar Displays previous screenfull

Linking long documents

Files made with *EasyScript* can hold several pages of text as you've seen from the 999 line maximum mentioned above. However, it's quite simple to make extremely large files from a series of smaller ones by linking them together. Use :

*lk:next file name (Return)

That command should be the last line in a file. Note that next file name is not enclosed in quotes and of course should be spelled exactly the same as the file to which you're going to link. There's no limit to the number of files you can link together, except of course in actual disk space because the *lk command causes the computer to load "next file name" from the disk.

It's preferable that all files being linked together be on the same disk so that you can put it in the drive and forget it.

The printout command must include an instruction to print linked files. Use :

F1/ O/C/L(Output/Continuos/Linked)

You don't need to give any further commands as the linked files will load and print automatically.

Headers, footers and page numbers

It's often quite important to have the pages of your documents numbered in sequence and it's quite easy to do this in *EasyScript*. This feature uses the sign

known variously as : hash, sharp, American pound. It's the symbol on the 3 key and is used reversed in this command. The secret is to first press F1 to go into Command Mode then press the shifted 3 key. Your page numbering command sequence could look like this :

*ft2:, Page #, (Note the * and # would be reversed)

Now, the command must contain two commas. They're important for positioning the footer text. The "Page #" in the above example would be "centred", whilst if we put the two commas after the words "Page #" they'd be at the left of the page bottom. If we put the two commas before the words they'd be printed at the bottom right of the page. Try it out for yourself and see.

You don't need the word "Page", only the reverse #, but you could try fancying it up with a dash before and after it like this - # - so that the page number will be printed with a dash either side of it. Other symbols like the < & > could be used for the same thing. Use your imagination on this one.

When using page numbering you can specify the starting number. If no number is specified then it naturally starts at 1. However, in the case of linked files it may be advisable to continue the sequence where the last file in the chain left off. You'd need to have Video-previewed it to know the ending page number of course, but you could then start the next file off with a command :

*p#xx (the # is not reversed. It's just shifted 3 key)

That command should be included in a print format line, or put on a line by itself before the header or footer that it's to work with.

Headers are useful in that you can print the same bit of text at the top of every page of your document, for instance:

*hdXX:, YOUR NAME, (Return)

would print your name at the head of every page XX lines between the heading and the main body of text. Only one

heading may be used at a time, but you may change or delete a header at any point in the document by issuing a new header command. It must be on a line of its own in the same format as above. Don't forget that you can have it on the left, right or centred by positioning the two commas as discussed in the page numbering section above.

For a complicated heading on each new page with three different topics to be included you can use:

*hd3:topic 1,topic 2,topic 3 (Return)

That would print the heading 3 lines above the main text body, with topic 1 at the left, topic 2 in the center, and topic 3 at the right hand side of the page.

Footings are formatted in exactly the same way as headers but with :

*ftXX:,this is a footer, (Return)

Which of course would print those words at centre bottom of the page XX number of lines down from the main body of text. The same rules apply as regards the two commas but you may only have one footer. In other words, if you've already put the Page Number at the foot of the page as shown above then you may not have another footer. You'll have to decide when setting up your document (a) if you want a header, (b) if you want a footer, and (c) do you want the pages numbered. Once you settle which two of those three you want then specify the format accordingly.

Here's another example of what you might do, including some printer control commands as well :

*hd2:,ESC/G ESC 4 MEMORANDUM
ESC/H ESC 5, (Return)
*ft2:,,ESC/F1/6/F1/2 PAGE #
ESC/F1/6/F1/0 ESC/7 (Return)

The first line sets up Emphasized and Double Strike print for the heading, then cancels it after printing the word MEMORANDUM in the centre of the page. The second line sets up Elite pitch and prints PAGE #XX (don't forget to use F1 then shift/3 to get the reversed hash sign for this) at the bottom right hand side of the page. Again, the printer commands are

cancelled after the line is printed plus the printer is reset with ESC/7 which, as you know, cancels all printer control commands already sent. Both header and footer (page number) will be two spaces from the text. Check through each command on each line to be sure that you know exactly what they're all doing.

When you set the text length at the top of your document you must remember to take the headers and footers into account. For instance, on paper length of pl66, with a header two lines above the text and a footer two lines below the text you should set the text length to tl60 maximum. The difference between pl and tl must be at least the header parameter plus one and if you're using both header and footer then both parameters plus two.

In addition to all this you can specify margins that will only apply to headers and footers, very handy if you're printing them in pica print and the main text in elite print for example. (Obviously one lot of margin settings would be no good in that case.) It must also be used if you specify different margins anywhere within the text, eg if you indent paragraphs. It's done like this :

*hlXX sets left header & footer margins at column XX

*hrXX sets right header & footer margins at column XX

Note that the command must be on a separate line from the header/footer command and that the header and footer margins can't be set at different values.

Manipulating text blocks

Now we come to manipulating blocks of text from place to place in a document. Quite often in say, a letter, you may decide that the paragraph you've just written would have been better if you'd written it a bit earlier in the piece. In normal typing it means a complete re-typing job to do that but in *Easy Script* it's a breeze.

First of all you have to "range" a block. To do this, first put the cursor over the first character in the block of text you want to move. Then press :F1 / R to indicate you're about to range a block. Use CRSR right & CRSR down keys to

highlight text to be included. The "ranged" text is highlighted in reverse video. Press (Return) to commit the ranged block to memory.

A memorized block will stay in memory until you set a new range but to avoid any confusion it's best to use the memorized block straightaway. All you do now to shift the block in memory to its new location is to put the cursor where you want the block to start, then :

F1/X transfers a memorized block to a new location.

That's all there is to it! However, if you try to transfer a block too close to its original location you may get an error message saying "cursor in range", in which case do an "interim transfer" by putting the ranged block somewhere else with F1/X first, then repeat the ranging operation, re-position the cursor to where you really want the block and complete the job with F1/X once again.

The block of ranged text in memory may also be copied to another place in your document by positioning the cursor where you want it copied to, then :

F1/A copies a memorized block to an additional location.

That can be very useful if you want to repeat something like a couple of paragraphs of instructions on Page 3 and, as you've already gone to the trouble of typing it in on Page 1p, you can get the computer to do the work of repeating it for you.

Deleting lines

Another handy thing that you can do by "highlighting" text is to delete whole lines of text, or just as many characters as you need to. It's done by positioning the cursor over the first character as in "ranging" then :

F1/D enters Delete mode

Use CRSR right to highlight unwanted text. Press return to delete highlighted text. Text closes up automatically ready for further additions or printout.

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Getting into BASIC

ALMOST all home computers have BASIC built in, or available in some form or other. The Commodore 64 is no exception, with an abstract of Microsoft BASIC ready to run on power up. Andrew Farrell explains how to get started on a hobby that will keep you amused for hours.

BASIC is the language for all of us who use computers. For one thing, it's not unlike English. Many of the commands and statements are easy to understand. They do what it sounds as if they do.

And you don't even need to write a program to try a few of these out. Some commands will work directly. You simply type them straight into the computer and press return.

This is called DIRECT MODE.

Here's a simple example you can try. Switch on your computer and type what you see straight in. The inverted commas are obtained by pressing the shift and two key simultaneously.

```
PRINT "HELLO"
```

Remember to press the RETURN key at the end of the line. You should see the word 'HELLO' printed immediately below what you entered.

The PRINT command you've just used puts text on the screen. Anything between the two inverted commas is printed on the screen exactly as you typed it.

The Commodore has special graphics, symbols and even colour or cursor controls, which may be included in a print statement.

Try this example now:

```
PRINT "GOODNIGHT","HELLO"
```

Notice what's happened? The comma between each set of inverted commas tells the computer to move to the next TAB position before printing. It's possible to use other ways to position text exactly where you want it. That way things

don't end up all over the screen.

You can also use the print statement to display numbers.

Try these for style:

```
PRINT 2
PRINT 4 + 2
PRINT 27/3.
```

You'll notice we used the forward slash in the last line. In BASIC this stands for divided by.

To multiply numbers, use the asterisk symbol. Differences with the examples we've just given you, the computer would have printed 2, 6 and 9. The sums were calculated and the result printed rather than the actual sum.

Notice the difference:

```
PRINT 8*6
PRINT "8*6"
```

Without the inverted commas, the numbers are interpreted and the answer calculated. With inverted commas, everything is printed exactly as it appears between the quotes.

Using our examples, as soon as you press RETURN at the end of each line, the BASIC interpreter tries to make sense of what you have typed.

In a program each command is given a line number. This is not interpreted until the computer is ready to deal with that particular entry.

Interpreters

Computers don't speak in BASIC. They much prefer machine language, their native tongue. To us humans, this is nothing more than a meaningless string of zero's and one's.

To help, an interpreter is provided. When you ask the computer to execute a BASIC program or command, the interpreter goes to work. Each instruction must be found in a list. Each part associated with that particular command is fetched. Once all the necessary variables have been located, the whole lot is executed. This process is very time consuming

and involves a lot of jumping to and fro. Thus, BASIC is very slow.

Games require many different tasks to appear to happen simultaneously. BASIC is just not up to scratch for these types of programs.

However, there's still a lot we can do. Let's take a look at a few more commands. Earlier on we used PRINT. If we add line numbers, this command becomes more powerful. Enter these lines into your computer. Remember to press the RETURN or ENTER key at the end of each line.

```
10 PRINT "Hello Bill Pike"
20 GOTO 10
```

The number at the start of each line sets the order in which everything is stored and executed. We can jump to a particular line using the GOTO command. In our example, line 20 simply tells the computer to go back and start again at line 10.

Type RUN to test out your program. You should see the phrase "Hello Bill Pike" appear down the left hand side of the screen. Try using your editing keys to add a semicolon (";") after the last set of inverted commas at the end of line 10. This time your entire screen should fill with the text between the quotation marks.

It's a little awkward to change line 10 whenever we want a different message. Here's a new command to make things easier. INPUT - for getting information into the computer. You can INPUT from the keyboard, disk drive or cassette player.

Normally, BASIC uses the keyboard.

To INPUT, we also need a place to store information. By naming this space a small area is set aside ready for use. Since what is contained in these spaces may change, BASIC calls them variables.

Here's an example:-

```
10 INPUT NAS
20 PRINT "Hello "NAS
30 GOTO 20
```


Now you can enter your name.

Line 20 prints "Hello", followed by whatever you typed. Line 30 jumps back to line 20.

In line 10 we INPUT the variable NAS. The dollar sign means that the variable may contain text. BASIC sets aside NAS in memory and a special pointer says where to store what you enter.

Most versions of BASIC allow you to use meaningful names for variables.

Instead of NAS we could have used NAMES. Only the first two letters are significant when naming a variable. NAMES and NAP\$ would be the same.

Variables may also be numeric. Leave off the dollar sign and only a number may be entered into our above example. Here's another example :-

```
AMOUNT = 6
C = 2
A1 = 2.5
```

Variable names may include numbers after the first letter.

You must not use any special characters such as an exclamation mark. Numeric variable can be added, multiplied, divided or subtracted just like numbers. For example :-

```
C = 2
D = 4
PRINT C + D
```

Just press return at the end of each line.

You should see the result of 6 displayed above the READY prompt. Ready tells us that the computer has finished, and is ready to go on with something new.

Experiment

Learning is fun when you can experiment. You can't harm the computer if you try out some of your own ideas. When things don't work you may become frustrated. Just double check your typing and start again.

Now let's put our BASIC knowledge to work. The following program prints any times table by using the commands

and statements we've learned so far.

Go on, type it in. Remember to press return at the end of each line. Don't forget to type zero not the letter 'o' when entering line numbers and amounts.

```
10 PRINT "Times Tables!"
20 INPUT "Please enter table to calculate";T
30 PRINT T,"Times Table"
40 J = 1
50 PRINT J"x"T" = "J*T
60 J = J + 1
70 IF J = 13 THEN END
80 GOTO 50
```

We've added a few new statements, which I'll explain soon. First, here's how the program works.

Line 10 displays the program title.

Line 20 asks for the times table you wish to calculate. Notice a prompt is first displayed before the variable T is INPUT. Don't forget the semicolon before the T.

Line 30 reminds the user which times table is about to be printed. The variable T and the text "Times Table" are separated by a comma. Once the value for T is printed, BASIC moves across the screen to the next TAB position before printing the message "Times Table".

Each screen line is divided up into several TAB positions. Normally there is one every eight characters. On a 40 column screen there would be five TAB positions. This is useful when we try to align a list of items underneath each other.

Since we are going to calculate our times table from one to twelve BASIC will need some sort of counter.

Line 40 sets J to be equal to one. Some BASICs need a LET statement in front of the J. This is what it looks like.

```
40 LET J = 1
```

Normally the LET statement is optional so leave it out if you don't need it. Line 50 does most of the hard work. It displays the multiplication performed and the result. Notice the print statement used is quite complicated.

Variables and text can be intermixed.

They may be separated by a comma, semicolon or placed directly outside the quotation marks. In our example a calculation is performed at the end of the line. The variable J is multiplied by the number we INPUT at the start of the program.

Line 60 increases our counter, the variable J, by one.

Line 70 - this is a new statement. The format is IF a condition THEN do something. The command checks to see if J is now equal to 13. If true the program halts with the END command. Any statements appearing after the THEN statement are only performed if the condition after IF was true. In our times table program the logic flows something like this :-

If we've counted to thirteen THEN end the program.

If J is not yet equal to 13, the program continues on to line 80. Since there's still more to print, we then jump back to line 50 to continue.

If your screen display is a little cluttered when you run this program, try adding a few extra print commands. In my version, I've included the following lines:

```
25 PRINT
35 PRINT
```

These simply print a blank line. You can insert new lines by stepping up your line numbers in fives instead of tens. By always spacing your line numbers out by ten, there's plenty of room for additions later on.

See if you can work out how to print your times tables up to 20 instead of 12.

Check out your user manual to see how editing functions work. Some computers use a special EDIT command. The Commodore 64 has full screen editing. This means you can move anywhere on the screen, make changes, press the return key, and your alterations are stored.

Certain keys allow letters to be deleted and inserted. Cursor keys move the flashing block on the screen left, right up and down. Learn these so that you can

change your program quickly.

Here are the modifications to our times table program. If you can, just change the existing line. Alternatively, re-enter the entire line afresh.

```
20 INPUT "Please enter table to practice";t
```

In this line we have changed the word "calculate" to "practice".

```
50 PRINT j "x" t "=" ; : input a
```

Line 50 is a little tricky. All remains the same until the inverted commas after the equals sign. Now the semicolon means keep printing on the same line. The colon tells BASIC it has reached the end of that command.

INPUT then asks the user to enter the answer to the sum displayed. We can put several commands on one line by separating them by colons. In this instance the INPUT command will ask for a number to be stored in the variable "a".

```
55 IF a <> j*t then 50.
```

Line 55 is totally new. BASIC will automatically insert it between line 50 and line 60. The IF... THEN statement checks to see if the answer is correct. In essence the line reads : IF the answer entered (variable a) is not equal to j multiplied by t then GOTO line 50. In an IF... THEN statement we don't need to include a GOTO statement after the THEN command.

After these few changes, we can now test out our knowledge of each times table. At the end of a test, just type RUN to try a new table. See if you can add to the end of the program a line which re-runs the program. It's easier than you think.

One problem with this program is the order in which the questions are asked. To make it a little harder, we could use random numbers, for the variable j instead of stepping up by ones.

Random Numbers

Any good computer game has random events. Something unpredictable that happens once in a blue moon. With a special statement we can produce random numbers.

These numbers help us decide whether to execute a random event. The statement varies slightly from one computer to another. However the following examples will work on most BASIC versions derived from Microsoft BASIC 2.0.

To get a random number we use the RND statement. Try this example on your computer:-

```
PRINT RND(1)
```

You should see a value between 0 and 1. This isn't very useful. So, it's best to multiply the result by 10 to give us a value that we can work with. Try this:-

```
PRINT 10 * RND(1)
```

This time the result will be between 0 and 9. However, we still have a string of decimal numbers that we don't need. And the value we want is between 1 and 10.

Another statement can help us out. The INT statement returns the integer part of a number. In this way we can remove unwanted digits past the decimal point. Here's an example:-

```
PRINT INT(1.675)
```

The result printed is 1. The .675 is discarded. We can use this in our random number routine. Try this:-

```
PRINT INT( 10 * RND (1)) + 1
```

We now have a value between one and ten. If we insert this value into our times table program, the sum becomes random. This makes the questions harder to do, and far more interesting.

By Altering the value of 10 and 1, we can change the range for which the random number is calculated. Using an IF... THEN statement the random number can be tested for and depending on the result, different events take place.

Here's a brief example program. It's a decision maker for those off days when you don't really feel up to work. Try it out!

```
10 A=INT(10*RND(1))+1
20 IF A<5 THEN PRINT"GO TO LUNCH"
30 IF A=5 THEN PRINT"STAY AT THE OFFICE!"
40 IF A>5 THEN PRINT"GO HOME...!"
50 INPUT "ANOTHER TRY Y/N";Y$
60 IF Y$="Y" THEN RUN
70 END
```

Well, that should whet your appetite. There's dozens of good books on BASIC programming listed in our Software Guide at the back of this publication.

Regular articles on BASIC programming appear in the *Australian Commodore and Amiga Review*. ■



"...This one's thin line, thin line, space, thick line, thin line, space, thin line, thick line, space, thin line, thin line ..."

BASIC Tips

For all you budding programmers out there, here's a collection of handy hints and tips to try out.

Screen Tips

Erasing a line of text on the screen can be a messy job. Here is a simple way to erase one or several lines on the screen using the inbuilt editing routines.

```
POKE 781, LN: SYS59903
```

(LN must be between 0 and 24). Try using a FOR.. NEXT loop to erase groups of lines.

It is also quite simple to copy a line of screen text (or graphics) to a new line. PL is the previous line and NL is the new line.

```
POKE 781, NL : SYS59888 ; POKE
172, PEEK(60656+PL):
POKE 780, PEEK(216+PL): SYS59848
```

To scroll the entire screen up one line use SYS59629.

Debugging

When trying to locate a program fault it is often useful to try to maintain your variables. Whenever you type RUN the computer also automatically performs a CLR command which erases all variables. In order to get around this, just type GOTO and the first line in your program.

Alternatively you could jump to any line that is at the start of a routine that is executable. In that way it is possible to test out various parts of a program, examine the variables and then continue from another point.

Keyboard Buffer

Many BASIC programs use a simple GET to obtain single key INPUT. This is satisfactory in some cases, however occasionally a character which is still in the keyboard buffer is accepted before the user actually gets to type anything.

A better method is the following one liner which traps single characters far more effectively:

```
10 POKE 198,0:WAIT 198,1:GET RS
```

Program Line Indenting

Many structured languages use very fussy formatting to ensure correct syntax. This is not normally possible with BASIC. It would be nice to indent FOR..NEXT loops and IF..THEN statements. There is a way.

Just type a shifted graphics character after the line number, enter the correct number of spaces, and then the BASIC text. When listed the graphics symbol will disappear and the text on that line will be correctly indented.

Disable Runstop/Restore

To stop accidental program stops and prying eyes:

```
POKE 808, PEEK
(808)+2: POKE 37150, PEEK
(3715) AND 127
```

To restore normal operation:

```
POKE 808, PEEK
(808)+2: POKE 37150, PEEK
(37150) OR 127
```

Key Repeat

Commodore have some very sophisticated editing features on their computers. However, not once in the User Guide do they mention that all the keys on the keyboard can be made to repeat! Well, here it is:

```
POKE 650, 255
```

Input Question Mark

Input statements are easy to use, except when you don't want that question mark to appear. There is a way to get rid of it:

```
POKE 19, 0
```

Function Keys

Many beginners have trouble in understanding the use of the function keys. These keys are located on the far right hand side of the keyboard and do not appear to generate any particular results when pressed just after you turn on your computer.

Some programs use them for special

functions, whilst others even give the function keys defined commands. It is possible to do this with a machine code routine, however, for just day to day use you may test for them using the following program.

```
10 POKE 198,0:WAIT 198,1:GET RS
20 F=ASC(R$)
30 PRINT F:GOTO 10
```

Run the program and try pressing a few keys. You will notice that most keys produce a value which is actually the ASCII value for that character. The function keys also have corresponding values which may be tested for. These start at 133 and go to 140.

Loading Machine Language

Many programs require that a machine language subroutine be LOADED up as part of the main program. Alternatively it may be necessary to LOAD a character set or sprite set. Using the standard LOAD command from within your program will not work correctly. This is due to the fact that after the LOAD, your Commodore will RUN your program again from the first line. This is not exactly the same as a normal RUN, as no variables are disturbed.

```
10 LOAD "Machine Code", 8, 1
```

(no good as program will keep reloading!) instead:

```
10 IF L=0 THEN L=1:LOAD "Machine
Code", 8, 1
```

Upper/Lower Case Lock

When a specific keyboard mode is required from within a program it is most annoying if the user can still toggle between graphics and lower case. To disable the key which allows that change (the Commodore key), use the following sequence:

```
10 PRINT CHR$(9)CHR$(mode)CHR$(8)
```

Mode will be either 14 to switch to lower case or 142 for graphics mode. ■

Why buy a disk drive?

TIME: 2:00 a.m. **SITUATION:** You have just finished debugging a 34K programming masterpiece which will even jolt the jaded eyeballs of someone who has seen it all - Andrew Farrell, boy magazine editor and software tycoon. **ACTION:** Save it on the good old cassette player. Rewind the tape, type SAVE"SPACE INVADERS V6000.15", press PLAY and RECORD and wait.

TIME: 2:15 AM. Humm, better VERIFY that SAVE just in case. Rewind the tape, type VERIFY"... etc etc" and wait.

TIME: 2:30 AM. VERIFY ERROR flashes up on the screen. Rewind the tape and start again.

TIME: 9:15 AM. You wake to discover most of a C64 keyboard imprinted on your cheek. Computers make terrible pillows. You are late for work/school and the screen is still reporting a VERIFY ERROR.

Your guardian angel appears. "My child," it says, "to protect your physical and mental health, it is time you bought a disk drive."

"But I'm dead broke and besides they're pretty mysterious devices."

"Well, your dear uncle Ebenezer has just passed away, leaving you \$400, and anyone who can write a program as momentous as SPACE INVADERS V6000.15 can surely work out the intricacies of a disk drive. If not, read the article you're now holding!"

Here you are. Read on.

Disk versus Cassette

No contest. The only consideration here is price. \$50 for the datasette versus \$300-\$400 for the drive, depending on where you shop. Once you have used a disk drive, even a 1541, your cassette player will sit on the edge of the desk growing spiderwebs and mould.

The two main advantages in using a

“The two main advantages in using a disk drive are data transfer speed and random access to files.”

disk drive are data transfer speed and random access to files. "File" means either a program or data file.

The computer transfers information to and from the cassette player at 300 baud (baud = bits per second). This is SLOW. The 1541, slowest of the Commodore disk drives, transfers information at nearly 3300 baud - slow compared to other drives but a whole lot faster than cassette. (You can speed up this rate using an add-on cartridge - see the December *Australian Commodore and Amiga Review*, 1988, or the Software Guide.)

Random access is computer jargon for "if a piece of information exists, I can find it for you no matter where it physically is."

With the cassette, it is up to you to keep a record of where a file exists via the tape counter. The fast forward and rewind buttons can then be used to manually position the read/write head at the start of the relevant file.

A disk drive does this record-keeping for you by maintaining a directory of where files are stored. If there are ten programs on a particular disk, named prog1 to prog10, and you want to load the fifth one, type LOAD"prog5",8 and the disk drive will do the rest.

With a disk drive, it is possible to set up file types other than the simple sequential files used by the cassette. Relative files allow quick access to data in applications requiring a lot of permanently stored information - like databases.

BASIC and DOS

DOS stands for Disk Operating System, a program that controls the disk drive. With most computers, the DOS is loaded into memory at power up or com-

prises part of an operating system in ROM.

Commodore disk drives are unusual in that DOS resides in the disk drive rather than the computer. This is why they are called "intelligent" drives. The main advantage is that the DOS does not take up any of the computer's RAM, an important consideration with limited memory machines. Another plus is that to carry out a disk operation the computer need only send a disk command and the drive will take care of the rest. Since the computer does not have to run the DOS it is free to go on with other tasks.

How are disk commands sent to the drive? This depends on which machine you are using. For those of us stick with BASIC 2.0 the lack of disk keywords means a little extra typing when dealing with the drive.

For example, the disk command SCRATCH deletes a filename from the directory and frees the space taken up by the file. To SCRATCH a file using BASIC 2.0 you type

```
OPEN15,8,15"SCRATCH:THISFILE":  
CLOSE15
```

Channel 15 is special for two reasons. Firstly, it is the command channel over which commands are sent to the drive, secondly it is the channel the drive uses to report on any error condition occurring.

If there had been a problem with the SCRATCH operation, the red "in use" light on the drive would start to flash indicating an error. To find out which error, you have to enter a short BASIC program to read the error channel. Like this.

```
10 CLOSE15:OPEN5,8,15
```



```
20 INPUT#15,A$,B$,C$,D$:CLOSE15
30 PRINT A$,B$,C$,D$<\CLOSE15
```

Did I say a little bit of extra typing? With BASIC 3.5, typing SCRATCH "THISFILE" would automatically open channel 15, send the command, read the error channel if necessary and close the channel.

Feeding the Disk Drives

The Commodore 1541, 2031 and 4040 disk drives feed on 5 1/4 inch, single sided, single density floppy diskettes which look like this.

Most disks these days are certified double density due to the number of double density drives in use. Don't



worry, double density diskettes work fine in a single density drive.

Floppy disks consist of a disk of thin plastic coated with magnetically sensitive material enclosed in a protective cover.

Density refers to the amount of magnetically encoded information that can be crammed onto a diskette. Single density means up to 250K, double 500K and quadruple 1000K per side.

Single sided means that only one side of the diskette is certified for use.

There is an old trick whereby a single sided disk is turned into a double sided one by cutting a write protect notch on the left edge of the disk with a paper punch. Don't make a habit of doing this as:- a) The flip side of a single sided disk

is not factory guaranteed to be error free b) by spinning the disk in the opposite direction to its normal rotation, dust and grit which has accumulated inside the disk jacket is wiped onto the "proper" side of the disk, eventually corrupting data.

(This is largely a matter of conjecture - here at ACAR we always use both sides of our disks, and have even been known to format SSSD disks on an IBM PC! - Ed.)

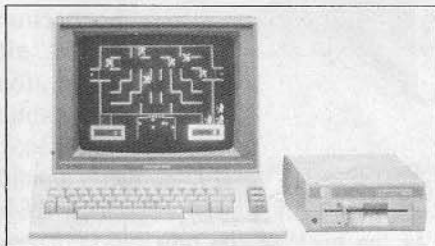
Disks like to be kept out of direct sunlight and away from magnetic fields. Keep them in their jackets when not in use and don't let coffee, greasy fingers or cigarette ash near the read/write and timing holes cut into the disk cover.

Prices for a pack of ten disks range

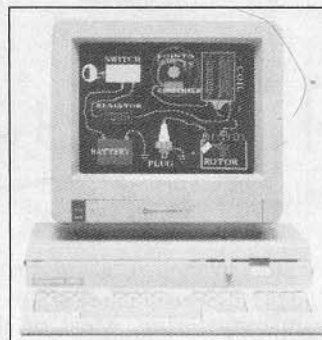
Sydney

United Computers

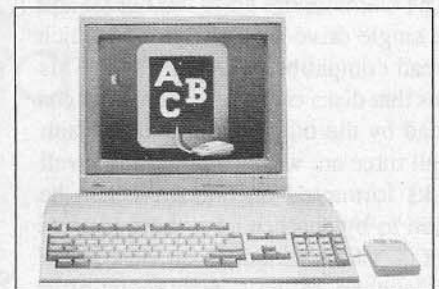
64C



128D



A500



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from around \$50 for Verbatim Datalife disks in a plastic case with labels to \$20 for Le Floppie by Imagineering which come in cellophane wrap without labels.

Which drive

The obvious choice for C64 owner is the Commodore 1541 drive. This drive provides 168K of formatted space per diskette and plugs in via the serial port.

Despite the fact the drive is comparatively slow and that some units suffer from reliability problems due to the read/write head going out of alignment, it does provide a far better file storage capability than tape. The official Commodore price for the 1541 is \$399, although it is common to find them discounted.

There are a number of other brand disk drives on the market such as the one from Pactronics and also the Excelsator Plus. See reviews of both of these in this publication.

The alternative to using a one bit at a time serial drive is to buy an IEEE interface and use a one byte at a time parallel disk drive. IEEE (Institute of Electrical and Electromechanical Engineers) is a standard for parallel communication between a computer and its peripherals.

The Commodore 4040 dual drive and 2031 single drive are IEEE drives which are read compatible with the 1541. This means that disks created by each drive can be read by the other. Commodore claim that all three are write compatible as well - disks formatted on one drive can be written to by another - but there is some doubt that disks formatted on the 4040 or 2031 can be reliably written to by a 1541.

Commodore no longer manufacture the 4040, but they can still be found on the secondhand market.

If you need a lot of disk capacity, like 1000K, then the Commodore 1001 double sided drive may be the answer. It requires an IEEE interface and will not read or write to 1541 disks. Cost is around \$600, secondhand only - Commodore no longer stock it.

1541 Alternatives

It's easy to improve on a bad design. Now we aren't saying the 1541 is so bad. It works with all software most of the time. Here's a look at two drives that work with most software all of the time. They may have the occasional compatibility glitch but on spec, they appear to be far more reliable. How did they go on the test flight? Andrew Farrell examines.

Pactronics

The drive is an Hyundai unit, which is made in Korea. Korea is rapidly becoming one of the major challengers in

1541 and about as wide. The Pactronics unit has a far more solid feel, and smoother lines than any previous offering.

The drive door has a swing gate type latch, and three LEDs - light emitting diodes. One light shows the power is on, one light shows the drive is in use and the third light is a write-light, so you can tell when your disk is having information stored to it.

On the underside of the drive unit there are 14 screws - an unusually large amount for a disk drive - although only six actually hold the top and bottom halves together. There are a large number

of ventilation slots on the underside of the unit to draw cold air in. At the top rear of the drive is another set of slots to let the hot air out.

The Pactronics drive sits firmly on four strong rubber feet, and looks perfectly at home next to a C64c.



computer manufacturing. Most of the Amstrad computers - if you will excuse the expression - are made in Korea as are a lot of Apples - excuse again - monitors. Most of the gear that comes out of Korea is well made, well designed and at the right price. This Pactronics drive, like other compatibles, boasts an external power supply, which is the simplest way to improve reliability.

Despite the fact that there is an external power source, the size of this disk drive is not reduced by very much. In fact, it is only slightly shorter than the

At the back of the unit are two serial ports, as per usual, the power socket, and a small power switch which is a rather small rocker type unit. Overall, the Pactronics drive looks good externally. Inside, the design is equally as compact, with the ROM chip being socketed, and a very tight PCB design. Two very large heat sinks are at the far rear of the drive.

Operation

As far as speed is concerned the Pactronics unit is much the same as a 1541.

However, it is umpteen times quieter. The bottom line with all these cloned units is compatibility. This is a very compatible disk drive. In short, this unit scores a 99% rating.

We tested numerous cartridges and programs and 99% were found to be completely compatible. The 1% found incompatible were old programs but Pactronics can, in most cases, modify these programs to ensure that they are compatible. Basically this unit is as compatible as the Commodore disk drive itself.

Overall

From the current set of alternatives, the Pactronics drive is the pick of the bunch. I'd recommend it above Commodore's own 1541C which suffers major compatibility problems. It still pays to have a true blue 1541, but this unit is a very competitive alternative - and the real thing is often hard to come by. Now when will someone bring out a 1571 replacement - you can't get the darn thing any more!

The Pactronics disk drive is unique in so far as it has ceramic read/write heads, and a steel drive head positioning band for reliability. These design features,

Commodore and other drives which are only guaranteed for three.

Pactronics are so confident in their drive's compatibility that they are offering a money back guarantee to anyone who buys the drive and finds not enough of their software is compatible, or alternatively they are prepared to modify the consumer's software to ensure it is compatible.

Our review unit came from the Australian distributors of the drive, Pactronics. Recommended retail price is \$349. For more information call (02) 407 0261.

Excelerator Plus

Sleeker, slimmer and stylish. Boasting greater reliability and its own external power supply for less heat problems.

Far smaller than a 1541, and substantially lighter, the Plus is a more attractive unit from the start. Housed in a rigid metal casing that's about two thirds as long and four fifths as wide as the old trusty, it's also a lot squarer.

Imagine the actual dark area of the 1541 and you have the height and width of the Plus. Inside, the circuit board

that of the latest 1541, with a swivel door. The disk slot is not spring loaded, and the disk sits well inside the drive. On several occasions I inserted two disks together, as the first was not visible!

A single LED provides an indication of power, drive in use and errors by displaying either a green, red or flashing red light respectively.

In operation the PLUS is deathly quiet. The familiar drive knock still occurs, but after hours of testing we experienced none of the alignment problems of the 1541. Heat dissipation is not a problem, since this unit has an external power supply that is connected using a din plug. At the back of the unit, there is a rocker switch for power and three din sockets next to each other.

Two provide serial input/output, whilst the last connects the power cable. Underneath the unit is another surprise. Dip switches allow you to select between device 8, 9, 10 or 11. Far simpler than unscrewing the case of your 1541 and soldering a wire link!

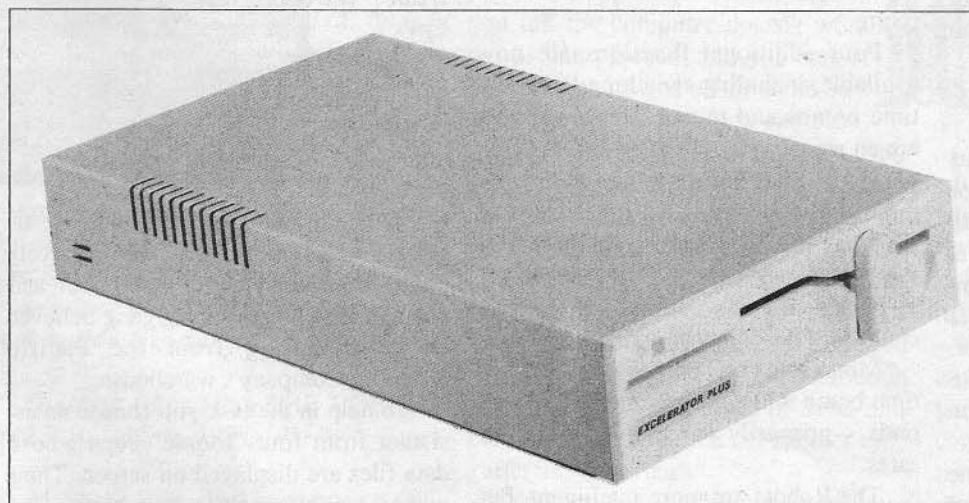
None of the games we tested had trouble loading, but as with all of these types of things, compatibility problems don't normally show their head until further down the line.

Conclusions

At this stage, I could safely recommend the Excelerator Plus as a viable alternative for the 1541. It operates smoothly and consistently. For crowded desks, the Plus has a tight foot print, and a quiet disposition. On the advertisements we are assured that it is faster than a 1541.

During a few simple comparison tests, the only operation in which the Plus excelled at was formatting a new disk. The final crunch is price. Excelerator Plus sells for \$299, so it sure is competitive.

Distributed by H&R Wholesale Pty Ltd, (02) 897 1044 and Micro Accessories Pty Ltd, (08) 287 0191. ■



when combined with the external power supply and the improved venting, add up to far fewer alignment problems. The Pactronics disk drive is therefore guaranteed for 12 months as opposed to Com-

modore wraps around the drive mechanism. There's no room for a Dolphin DOS, or similar speed up device. Only one of the chips on our review model was socketed.

The drive mechanism is similar to

Games roundup

C64 owners the world over are proud of their machine's punch when it comes to games. Here's a look at a few we rated highly - and still say go out and grab yourself a copy!

Impossible Mission II

Reviewed by Andrew Farrell

In 1986, *Impossible Mission* won the then yet to be coveted *PC Games* magazine game of the year award. Since then *PC Games* magazine has folded, and *Impossible Mission* has gone onto bigger and better things - *Mission II*!

The second instalment opens with those famous words, "Another visitor" "Stay a while" "Stay forever!" Elvin is back, alive and well at the top of a massive complex of towers and security doors, depicted in the opening scene.

Your objective is to save the world from being destroyed by the psychotic machinations of the genius himself, Elvin. The steps involved correlate roughly to the main features of the first mission.

Game-Play

Impossible Mission became famous partly because of the incredible animation of your man somersaulting through the air, and partly because of the adventure-like scenario. Part II enjoys the same animated sequences, however the scenery has been greatly enhanced, as has the plot. Your man is also now capable of the squat position, primarily for travel on sliding platforms.

The game proceeds in much the same fashion, with play commencing in one of the many elevator shafts. The elevator can be moved up or down to a room. At the very top and bottom of each shaft is a passageway leading to the next tower. This is where the security code is required

in order to pass. So now each level or tower must be completed before the next can be attempted, providing a definite feeling of progress.

In itself, the elevator is smarter looking than in *Mission One*. It now comes complete with a spinning operating gear, and stops far more easily at the desired level.

In the corridors, as you run the floor lights up. A nice touch. The walls and roof are more complex, perhaps a little overdone, giving an more hi-tech atmosphere.

Once you enter a room, the differences become more apparent. A more three-dimensional looking design appears. You can still only move in two dimensions, but the feel is there. In addition to lifting platforms there are now also sliding platforms. These can be controlled in some instances by standing on the platform, and pulling down on the joystick, then moving it either left or right. Others can only be manipulated from a terminal in the room.

Four additional functions are now available, including switching lights on, time bombs and mines. These last two are an amazing feat in themselves. Once you blow up a portion of any platform, that's the way it remains for the rest of the game. Great for getting rid of annoying robots, or reaching those hard to get at places. But care is needed, or you could well become the victim.

Mines must be bumped into, whilst a time bomb will detonate after a few seconds - primarily for gaining entry to safes.

The Robots are more intelligent, but apparently lower voltage. Gone are the twisting electrical bursts of energy. Instead we have one feeble bolt that doesn't look anywhere near as dramatic. However, it disables your man just the same. There are six models in all.

Conclusions

If you enjoyed the first mission, this one will get you right in. It's easier to make progress, since you don't have to mess around with pretty shapes, but overall, your objective is much tougher. Each room has plenty of challenges, with far more ways of getting prematurely terminated.

Fortunately there's often more than one way to get to every object. This is a big help in sticky situations. Don't be alarmed if you begin the way I did, getting zapped once every ten seconds. It does take some getting used to these new second generation robots.

I think *Impossible Mission II* could well be in the running for another award. We might have to start handing one out at *Australian Commodore and Amiga Review* just for this game.

Distributed by Questor (02) 662 7944
RRP \$34.95.

L.A. Crackdown

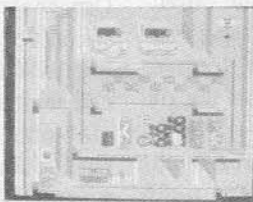
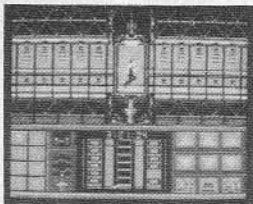
Reviewed by Eric Holroyd

In this third release from the Epyx

"Master's Collection" you're an ace drugs detective

(the manual said "crack narcotics investigator" which I thought was a lovely pun!) Your brief is to search out and smash a Los Angeles drug gang believed to be operating from the Pacific Shipping Company's warehouse.

To help in the task you choose an assistant from four "rookie" cops whose data files are displayed on screen. Their names, height/weight, police history and social outlook etc are there to help you decide on a partner. I liked the idea of #4, Felix Schwarzenegger. He sounded so big and strong, just the guy to have along when you're crime-busting in LA!



Your rookie can carry out all sorts of tasks (Search, Take a picture, Arrest, Plant a bug, Review, Identify etc) which are directed by your choices from the options menu and he can plant up to four electronic bugs to help gather information. You can record the suspect's telephone calls on your van equipment via one of these bugs and even have him pick bugs up again to relocate for checking out more suspects.

He'll interview suspects and arrest them too if you tell him. You're advised to give him a rest every 12 to 16 hours or he may quit the job so watch the clock/calendar display which tells elapsed time since the investigation started. You can "compress" time if your rookie is watching a suspect who's gone off to sleep for instance and save yourself the trouble of sitting there with no action. The correct time is still logged however.

I found this to be a very good game and I liked it a lot even though I'm not usually into adventure/strategy games. This one's different as there are very good graphic displays of what's going on (even down to a winking dot on the map when the surveillance van is going to a new location) and it was quite absorbing.

There's a "save" feature so that the current investigation can be stored on a data disk for later game-play, a good inclusion as you could easily play one game over several sessions. Incidentally, there's no typing involved (except for Y or N) as the choices are all on the screen.

L.A. *Crackdown* is distributed by Questor (02) 662-7944. RRP \$34.95.

Out Run

Reviewed by Andrew Farrell

According to the included documentation, *Out Run* is the product of nine months' work by a team of programmers. The Sega game machine that takes you

to the very edge of driving thrills and spills, has sold some 20,000 units world wide, making it the largest selling arcade game ever.

Although no longer manufactured, many coin-op arcade game proprietors will search high and low to acquire one of the existing units. If you haven't played the original, collect a few dollar coins, and head down to your nearest arcade alley. This one promises to impress. As you race along the landscape, complete with hills and dips, the seat moves and the steering wheel shudders. Total realism like you've never before experienced in an arcade game.

And what of the Commodore 64 conversion? The seat might not move, although with some help from office staff here at the *Commodore Review's* dizzy editorial offices, we did manage to add some of the original machine's flavour.

There can be no doubt that this is the best ever car racing type game for the Commodore 64. Whilst the graphics and animation are not perfect, the realism and over all simulative value are both high.

Like the arcade original, there are a variety of possible courses, each including a variety of landscapes. You must chose your desired course prior to the outset of the game. To change your course later on, you must switch off and reload. Each course is in itself a self-contained game.

A soundtrack of the original arcade game music is included - but it's not in the game, it's on a separate tape. If you're serious about hearing it, pop the cassette into your ghetto blaster. Personally, I preferred the tinny popsicle C64 sound track. Sound effects are average, bordering on substandard, but the music isn't bad.

Now you're ready to play. It's the only two speed Ferrari of its type. But

it'll still do over 240K's, so do your belt up tight. The road is fully three dimensional, complete with hills, dips and bumps. Scenery passes by, which although a bit jagged looking, provides more than ample reassurance of your extraordinary speed.

Each of part of the course must be completed within a prescribed time limit. If you fail, the game ends. Succeed, and you progress to the next part of the course. All the courses begin at Coconut Beach, lined with palm trees and spectators.

Later on, there's everything from cliff edges, overhead gates and houses to provide that extra obstacle. Hit one at the right speed, and your Ferrari will flip and spin, tossing the occupants onto the road. You've got your girl friend with you too. She just loves to point the finger when something goes wrong ... a nice touch.

The car handles well. With the right line and speed, the Ferrari loves to hug the inside bend. Take it wide, and she slides out of control. Other cars on the track prove hazardous, especially through the bends. Bump one and you quickly lose speed.

The sensation of hills is exceptional. On the original arcade game it's umpteen times better.

Overall a top game. One that I'll be playing many more times. If you're into driving, this is the ultimate for C64 owners.

Tips on Playing

Stick close to the inside of each corner. Try to anticipate each bend and be in the inside lane before you approach it. Start turning slightly before to start the Ferrari in a slide. Keep your accelerator flat to the floor. Only use the gears to slow down when desperate. Don't touch the breaks, except in a total emergency.

Keep cool. Play it calmly. Radical driving will get you smattered on the side of the road. Ease around each car gradually. A quick bump of the joystick at the last moment will often sneak you

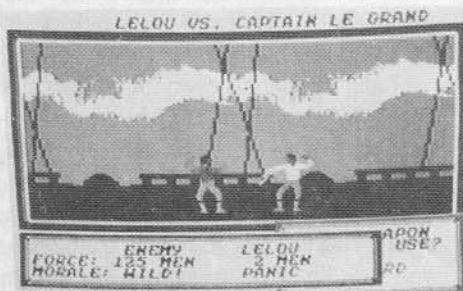


past even the trickiest of traffic hassles.

Distributed by OziSoft (02) 211 1266
RRP \$39.95.

Pirates (The Game)

No, this is not another article about the folly of copying software. It is rather a review of a game about the real pirates of yesteryear. Both educational and entertaining, *Pirates* is a true real-life simulation from software company Microprose.



A swashbuckling simulation that takes you sailing around the Caribbean Sea in search of wealth, fame, and fortune. Your strategy will decide whether you end up in a Spanish prison, or married to the daughter of a British governor. You can rely on trade or be a bit more daring and take to powder and shot.

Inside the package you'll find a floppy floppy and map of the Spanish Main, from 1560 to 1700. This is a time period of massive upheaval within this area. From the Silver Empire to Pirate's Sunset, a rise and fall of Spanish military superiority, and the very heyday of buccaneering.

The screen displays each prompt in a window which appears offset, although slightly overlapping the previous window. Easy to follow, and helps you to understand how the game works and remember where you are.

Choosing between options is carried out using the joystick and button, and with the help of a screen pointer in the shape of a quill. A bit slow at times, but easy to do.

There are many different aspects to the game, and a variety of ways to achieve your goals. Forming a relation-

ship with various governors is a big help. They may charge you to do a job, and later reward you for completing it. Each town has a merchant and tavern which may provide opportunity to trade and build your crew respectively.

Visit the wrong town and you may find yourself under attack. Each port is named on the map, however it's up to you to establish just who occupies what at your time period. It's possible to sneak into port for information, or to just plain old sail in and march up the main street - a good idea when you return to a friendly land. Other ports may call for more drastic action.

A raid from the sea, with a barrage of cannon fire, or maybe tiptoe around to the back entrance and attack by land. These are violent times, which would have no doubt been rough to live in. Gold and silver held great value, and frequent raids on ships and land convoys were not unheard of.

Without getting too carried away with blowing up other people's towns, you can still make a small fortune treasure hunting. Occasionally a tavern may be a good source of information, only too glad to sell you a map.

At Sea

Once you're in the big blue yonder, the joystick controls movement, and the right angle of attack is necessary to gain the best speed. Watch for cross winds, and currents too. The display is a top on map view, moving one screen character at a time. A bit jerky, but acceptable. Graphics are just all right, but more than good for a simulation.

Most of all, beware of other ships. On encounter you can investigate their credentials at long and medium range. If friendly, pass by for news, or if the enemy, draw alongside with cannons blasting and storm the ship.

A full animated sword fight with a variety of manoeuvres takes place. The scene takes place either on ship, in a

fort, or within a town depending on the situation.

Strikes to the body reduce your morale, and that of your crew. If things get really tight, you can back off and run away ... often a wise move.

Animation is not brilliant, but sufficient to portray the actions involved. Sound is rather lacking, with the occasional crunching noise.

Documentation

The manual is excellent, one of the best. It tells all you need to know to give a real feel for the era, as well as providing the right information in the right place on how to play. Only one thing found me a little confused. At the start you are told that your family was lost from you. During the game the option may arise to locate your sister, by means of a map. Little is said about this in the booklet, and I'm still unsure of just how to locate her using the map provided. Treasure I have found by map, but not my sister.

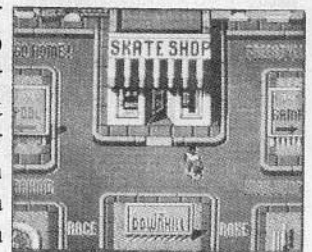
Historically - could be viewed as educational. Much is said regarding the major events of the day. The game gives you the chance to be a part of the action, in whatever quarter you choose. If ever you get stranded in the Caribbean, you might even have a better idea of your way around! A fun game, that really gets you going. Good graphics, well designed and presented.

Distributed by Questor (02) 662 794
cassette \$34.95 disk \$59.95.

Skate or Die

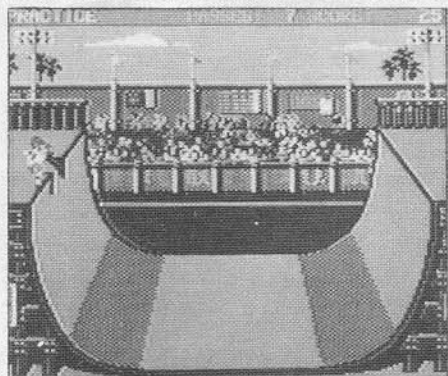
Reviewed by Adam Rigby

Grab your board, slip into your shades and get skat'n. Lester is in town and gonna teach yus a lesson.



Necks limbered, wrists readied and deep breathes taken as the 1541 whirled

at its solemn old pace. The title page appeared and we were in awe, an absolutely wild sound track accompanied the graphic



of the skateboarder, the finest you'll see and hear on the 64. Patience followed as the game loaded ...

We prepared ourselves for the wait but to our pleasant surprise the game loaded reasonably quickly and we were face to face with one very ugly dude indeed, similar to Jabba the Hut with a purple mohawk. This charmer runs the skate shop from which you either register to compete or "go practice". A variety of other titbits can be done at the skate shop such as viewing High Scores and changing your Skatey colour.

Once a mode is selected you are presented with a bird's eye view of the skate shop and surrounding streets - all of which lead to different fields of competition. All you do is skate over to the different areas of the screen and the drive whirs and presto, you're there.

The different fields of competition include the pool joust, downhill race, downhill jam, freestyle and the high-jump. All of which are quite different in their game play and difficulty.

The Pool Joust

A chance at some mindless violence, not the alien blasting or scream of metal contorting in an onslaught of missiles, but just an opportunity to belt your "mate" with a boffing stick. A little bizarre you declare, not if you're a skatey fiend. Skating round an empty pool trying to biff a fellow skater is reminiscent of so many other sunny days when you

did pretty much the same thing - life for a skater is never dull.

Rules for this game are simple - two go in, one comes out. You get five passes at your opponent, then he takes the boffing stick from your fevered grasp and the tables are turned. The first skater to score three slams on the other skater wins, but you have to be in front by at least two.

Downhill Race

It's a quiet day in the park. No bratty kids. No construction workers. No park rangers. No old men dressed up as clowns trying to lure young children with lollies. No pink elephants flying remote control gliders. Prime time for speeding downhill at a breakneck pace. Race against time and collect bonuses along the way. Skate under, through, on top of, over, and along any number of "opportunities."

Downhill Jam

Alley racing and mega destruction are the aim of the game. Pop soda cans, mash trash cans, bust a few bottles, crash flower pots and, hey, why not each other! You fight time and an unfriendly skater to reach the main street first. The controls are like Downhill Race, with REGULAR and GOOFY foot options available. This time clicking while leaning the controller does the all the destruction work. Click and lean into the direction you're facing to punch, either high, middle or low depending on where you're leaning the controller.

Freestyle

There's a hundred feet of wood and steel, curved into a wide and smooth U-shape, just waiting for someone like you to try some incredible moves. Move the controller forward to back to choose your entry position. Sorry, no channel drops. The channel is slam territory in this event.

After you drop in, you'll have ten passes through the ramp, executing tricks at the left, right, or both ends. As you make a pass, click the button in the pump zones to increase your speed and to select a particular trick. You'll also need to lean the controller either into the direction you're going or away from the direction you're going.

This part of the game was definitely my favourite, with some really radical tricks possible. When a player is on the ramp the crowd watching him are in sympathy with his every move, eagerly awaiting the next unbelievable move that will be pulled off. Concerned faces watch the skater on the ramp that holds him from a sheer 20 foot drop. Sounds dramatic? Well, it is, also it is extremely gratifying to complete a really difficult manoeuvre

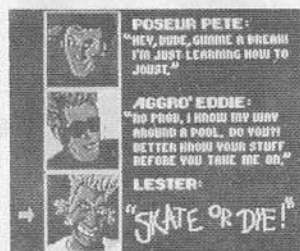
Highjump

Sheer guts event. No two ways about it. Go fast to get high. While you're in the ramp, move the controller rapidly in any direction to build speed - but you can take a breather while you're in the air if you want. You get a maximum of five passes on the right side where the height marker is. Of course, you don't have to wait all five passes. To actually go for it and record the attempt, click the button at the highest point of your jump. If you time the click just right, your tweak will add a few inches. If not, it's time to bail.

This is a very professional piece of software, which will prove entertaining for many people as it did for the editorial office of ACR.

Chuck Yeager's Advanced Flight Simulator

When it comes to flight simulators, you'd think the C64 had done its dash. Now there's another with a difference. This baby was co-produced by one of America's greatest test pilots ever. The



end result is impressive. Andrew Farrell parachuted back to earth for this review.

Who's Chuck Yeager? He's the first man to ever travel faster than the speed of sound. He carried out that amazing feat on October 14, 1947 strapped aboard the experimental Bell X-1 rocket plane.

In his *Advanced Flight Trainer*, by Electronic Arts, you too can experience the thrill of flying a jet aircraft. If the pace sounds too hot, you can also relax in a Cessna, and just take in the scenery.

However, this simulation is really for speed freaks and precision flyers. It's fast. Mach III plus. And there's formation flying, air racing, and slalom courses to test your every nerve.

Plug your joystick into port two, and strap down. The program begins, after the usual title screen, with a six option menu. All the menus are pop up windows, with selection carried out using the joystick and fire button.

To get a quick taste, I selected intro flight and sat back waiting to be stunned speechless.

Advanced Flight Trainer is good, although there is little ground detail, the intro flight demonstrates well the super-tight handling and instantaneous reaction to slight stick adjustments that is characteristic of jet propelled craft.

If you've ever wished you could fly upside down and stay there, this is the way to go. The intro flight is stunning. Imagine winding your way between a series of massive towers in an XPG12, and you've got the liquid hydrogen equivalent to the Olympic ski run at Perisher.

My appetite was whet. Now for the real thing. Next on the menu was test flight. From here you ride any one of

fourteen different craft to their very limits. I chose the Lockheed SR-71, a supersonic reconnaissance jet that goes right to the edge. And that's just what I did. After a quick take off, I eased the stick back a touch, and selected 100% power.

The horizon dipped out of sight, and the sun swung into view. After a few seconds the clap of the breaking sound barrier was heard. A quick roll, for a look at the view, and then straight back to my climb. Soon the sky turned black. I had reached the edge - 80,000 feet above sea level.

Not content with that, the next step was to put her in a dive and see what sort of speed the SR-71 could really do. Nose down, throttle still way up, the altimeter raced towards zero and the speed just kept climbing. Eventually I hit Mach III, and kept going. By now the ground was closing fast. I pulled up, and the G counter raced up past 10. The screen blacked out, just as a message that I'd ripped the wings off appeared.

After a few moments of darkness, the screen reappeared. I was spinning helplessly. Another minute or two at fumbling with the controls, and the SR-71 was smattered into insignificant pieces. Chuck Yeager's face appeared, politely informing me that he didn't even know me, which didn't change things much.

Operation

Electronic Arts menu system was a little difficult to come to terms with at first. Mainly because the documentation is a bit vague, and the Commodore 64 version seems to be one big errata sheet - with constant mention to changes and alterations. All very irritating if you didn't

know what the original controls and keys were anyhow. Apparently the program was developed on an IBM PC, then ported across to the C64 and improved upon - thank goodness.

After about half an hour of toying around, I still had hassles working out which keys did what when. It was mid morning too!

Flying the planes is tricky at first. Once you get the hang of the screen cursors, which way your controls are headed, precision manoeuvres become far easier.

Action may be viewed from a satellite position, left, right, up, down, from the tower, from a chase plane, backwards and from the cockpit. The display can be paused, and sound toggled off or on. A simple zoom function, from a factor of zero to nine is available, and the forward view is also available with the cockpit removed.

Conclusion

Recommended flying! Graphics are about as good as you'll ever squeeze out of the C64, especially at the speed of sound. Sound is about as good as any other jet game, nothing amazing. But handling wise, this is the Test Drive of flight simulators. When you get bored with one plane, try another. Be radical, or be precise, there's situations that demand the best of both.

Advanced Flight Trainer has got to be one of the best games from Electronic Arts to date. Memories of *Mercenary* came flooding back at first, but eventually this one had the edge. Top class stuff, well done EA!

Plans are already afoot to produce *General Chuck Yeager's Air Combat Trainer*.

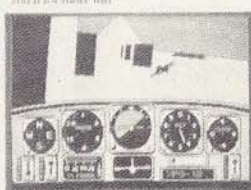
Distributed by ECP (075) 963 488 cassette \$24.95 disk \$34.95.

Project Stealth Fighter

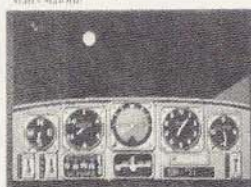
Right in there with the best flight simulators comes a game called *Project Stealth Fighter*. Its flight simulation is good enough so that it could be just that,



It looks like a person's making a landing test and it's not many times



Can you follow Yeager's lead through the all-Mach slalom?

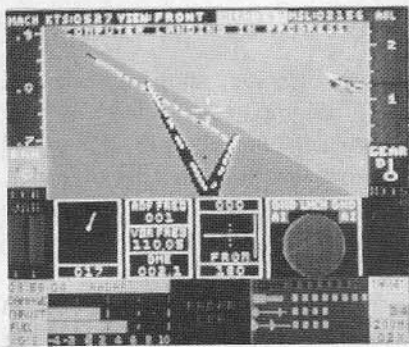


As test Pilot, push the SR-71 past the final frontier into the realm of the unknown



You call yourself a pilot?

Dig a hole and you'll face the wrath of the ultimate survivor himself



simulation with various missions and levels of difficulty.

Complete with Heads-Up display, your jet has the latest in technological innovations. Extensive target tracking systems as well as radar and stealth technology puts you in a performance class of your own.

There are various different areas that can be involved in conflict that you may need to attend. The area that you start in is Libya and from there you can go to The Persian Gulf, The North Cape or perhaps even Central Europe.

Whilst this may seem like just another shoot-to-kill game, it is far more in-depth than the average game. The manual itself is quite a comprehensive text that covers extensive information about the armament and tactics that are recommended for use during encounters.

The most impressive feature about this game is its realism, not that I have actually flown a F-19 Stealth Fighter to compare it with. The game holds your attention and definitely does make you feel like you are there.

For distributor and price see the Software Guide in this Annual.

Road Runner!

Warner Brothers classic cartoon character is back, pursued by the resourceful Wile E. Coyote. Will you live up to Road Runner's elusive image, or make a meal for the cunning, conniving Coyote?

Originally released as a coin-op game, *Road Runner* is now available on the Commodore 64. OziSoft, the game's distributor, were surprised to hear I had made it to level ten. Glued to the screen for several hours, the score clocked up to

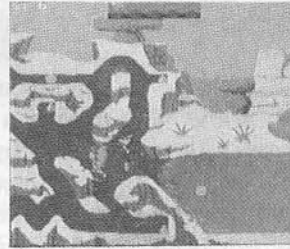
a massive 146,350.

Set on the familiar desert backdrop, which scrolls smoothly from left to right, you must eat as much bird seed as you can find. Miss five bird seeds, and you'll faint from exhaustion. Avoid trucks, mines, and boulders or lure Coyote into them for extra points.

Four primary levels provide the scenery for variations on levels five onward. Initially, the game is fairly easy. However, once Coyote hops on board his pogo stick, helicopter or jet pack, the going gets tough. From the helicopter he launches a barrage of carefully aimed dynamite sticks, best avoided by keeping constantly on the move.

By dashing quickly from left to right it's possible to outmanoeuvre Coyote who, in true cartoon style, slides to a halt before changing direction. In this way you can also guide your foe into mines, oncoming trucks and other assorted obstacles.

Occasionally a can of lemonade appears, which should be consumed for a bonus score. Invisible paint, crevasses, and falling boulders appear as the game progresses. One very smart feature is a shortcut at the start of level one. This allows you to return to the last level played in a previous game. Sure makes all that hard work worthwhile when you can keep



exploring the higher screens rather than continually restarting.

Both Coyote and Road Runner are easily recognizable in Commodore's multicolour graphics mode. The animation captures the antics of our TV heroes perfectly. Unfortunately, the Road Runner theme song was absent.

In its place is the familiar "Flight of the Bumble Bee", an equally fitting tune. Sound effects are few, but adequate. In all, a well presented entertaining mixture of comical but challenging scenes.

Distributed by OziSoft (02) 211 1266 cassette \$29.95 disk \$39.95.

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Graphics

Commodore 64's are turning up in the strangest of places. Shopping malls, store fronts, video presentations and the like. Yet nine times out of ten I wonder who it was that did the graphics. Most times the best they come up with are the chunky keyboard characters on a standard text screen. Well, now there's no excuse.

Here's a flash-back to some recent releases in the graphics spectrum. Both picture utilities and the programs to make the pictures are mentioned. As usual the latest entries to the market are about the best.

For other graphics programs, check out the Software Guide at the back of this Annual, or look in last year's Annual for a more complete run-down of older programs that may still be around.

Super Snapshot Slide-Show Creator

by Eric Holroyd

A companion program to the C-64 Super Snapshot cartridge, that turns your computer into a mini-slide projector. In

the cartridge a screen copy function allows you to save a bit-mapped screen to disk for further viewing or manipulation. Files will be saved as either Koala or Doodle format depending on whether they were multicolor or hires screens originally.

This program then enables you to use the screens you've captured to make a continuous show with messages. As there is a built-in high-speed fast disk loader routine the slides come up on screen pretty quickly.

The Super Snapshot cartridge is required to create the slideshow but not to run it. This means, of course, that you can create "stand-alone" slideshows for any number of uses: business presentations, teaching aids, in-store displays or just for sending to friends.

There are three modules in this software, the Creator, the Projector, and the Programmer. The first module needs the Super Snapshot in your 64's cartridge port as it uses some of its code to make the slideshow. It's all menu-driven and quite simple to work with.

Variable display times, messages and optional user intervention may be set. There's also a swag of wipes, and fades

including dissolve, shutter, slide and pop. All are good effects and you may "mix 'n match" the wipes ie slide in and shutter out, pop in and dissolve out, shutter in and pop out. These effects will make your show look really professionally produced.

Scrolling messages may appear in any one of ten fonts in nine different colors and in two font heights, and in any screen position including the top and bottom borders. There are other scroll parameters which you may modify also, including whether your message takes foreground priority or not.

Distributed by Westend Computers
(03) 350 5144 RRP \$95.00.

Cockroach Graphics Utility

by Andrew Farrell

Enables you not only to capture graphics but also to easily edit, combine and print the results or make a slide show. If you currently toy with any of the many print packages around such as *Printmaster*, *Printshop* or *Newsroom* - this cartridge and software is a must. Transferring graphics or clipart as it sometimes called, between formats is a cinch.

The Graphics Utility is a cartridge and utility disk, along with some thirty pages of documentation. Pictures, including sprites are captured at the press of a button on the Utility cartridge itself. Each picture is saved to the disk in the appropriate format. Then using the utility disk it may be saved in a standard format called a CCG file. This takes up less space on your disk than a normal picture, and is therefore faster to LOAD. The standard format also acts as a stepping stone toward changing the picture file into a different picture format.

Everything is menu driven using the joystick or keyboard. Once you LOAD a picture or graphic, if you move to a different editor, the data remains in memory for you to continue editing. For example, if you loaded a Hi-Res picture (such



as *Doodle*), and then moved to the printshop editor, the *Doodle* picture would remain in memory so you can add clip-art to it, or snapshot part of it to make clip-art. You can save the clip-art file as either a two or three block graphic as required.

Being able to move from program to program without losing your current picture has a few interesting side effects. Firstly, because the edit area is not cleared when you first run the program, it may contain garbage - however if you've just exited from Geos, it will contain the last picture screen you were viewing.

The utility in no way replaces any of the powerful drawing packages around. Rather, it adds to or complements whatever software you have, by enabling them to work together. The Display Editor provides simple editing facilities for virtually all the C64's display modes. These include text screens, text screens using a redefined character set, hi-res graphics, multi-colour graphics and sprites. Extended background colour mode is not supported.

Problems can be encountered where the captured screen used a raster interrupt to split between two different graphics modes. In this instance you will have to try and capture each mode by trial and error and then combine them again later.

Having loaded a *Koala* or *Doodle* file, you can save the picture as a CCG file (to print it or make into a slide-show). Depending on the picture format, the border, background or multi-colour registers may also be changed, giving pictures a whole new slant. You can also pick up a character block on the screen - that's an 8 x 8 block of pixels - and use it as a brush. In this manner it's possible to carry out quick and dirty modifications to your favourite game screen shots.

Sprite colours are modifiable, as are their size, and position.

Printshop users will enjoy the layout editor. *Printshop* and *Printmaster* graphics can be loaded and distributed around the screen to create a collage, cartoon, or picture. You can use a straight hi-res

screen, with no colour, as a backdrop to build onto. Loading a different format will cause the colour to be automatically stripped.

If you're into *Newsroom*, you may be wishing there was faster that does the same thing - word has it from the USA that such a replacement is on the way. However, in the meantime, you can do a lot of interesting things with the *Newsroom* editor - which is umpteen times faster than booting up the program itself.

Working much the same as the *Printshop* editor, background pictures are allowed in monochrome, and graphics imported may be overlaid.



In all three editors there's a fairly standard set of keys that carry out special functions. If the key you select won't work in the mode you happen to be in, a buzzing noise is heard. Some of the functions include:- reverse screen (or make negative), flip left/right, toggle between hi-res and multi-colour, and clear. Sprites and clip-art may also be played with using much the same functions.

From the main menu there are a few other very useful programs. In order, they are Fast Format, Roach Show Maker, File Converter and Print Routines.

You are always prompted to insert the correct disk - and a mistake will not

crash the program. The Graphics Utility will also work with a dual drive system very well. You never get stuck into an option - RUN/STOP and RESTORE will bring you back to the previous menu.

The overall design is very slick, clean and easy to operate. The programs follow a logical flow that quickly becomes a matter of habit. This is version two's greatest improvement over earlier releases.

A very worthwhile choice for the graphics enthusiast. The utility software is a solid package, that works reliably and consistently. A great stepping stone for those trying to break into the world of graphics.

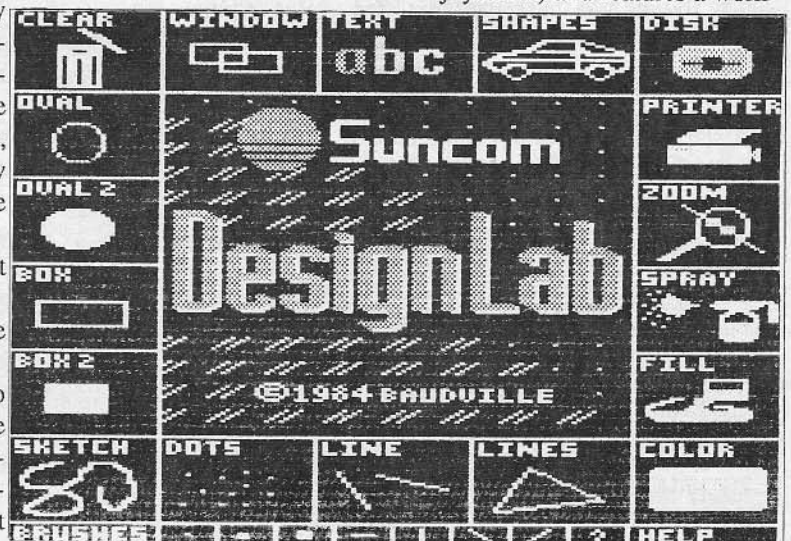
Enquiries are best directed direct to Cockroach Software on (075) 91 6188 - and don't be afraid to use the answering machine!

Animation Station

by Eric Holroyd

This one is terrific! First and foremost it's a "Computer graphics sensor pad" which takes over where the *Koalapad* left off. I've used a *Koalapad* for the last couple of years, both for drawing and for adding to (or otherwise altering) pictures captured with the *Cockroach Graphics Utility*.

It's a very robust piece of equipment. It's made by Suncom (who make those excellent joysticks) and features a work-



ing surface marked off into a grid pattern and with a pair of "action buttons" on either side of the touch-pad. This ensures that left-handed folk can use it just as easily as right-handers.

To make it even easier to use, Suncom have provided a little fold-out "easel" at the back of the unit so that you may prop it up at an angle if you prefer working that way. Of the two pairs of buttons the bottom one is the "DO" button, the top one is "UNDO". Simple!

Use the stylus provided to point at something you want from the menu then press either bottom button to load it. The software provided with the Animation Station is called the *Design Lab* and is very similar in layout to *Blazing Paddles*. Not surprising as it's written by the same guy, Sean McKinnon.

Design Lab has all of the usual drawing program features: Lines, Boxes (plain or color-filled), Dots, Fill, Zoom, Ovals, etc etc, and lets you draw with a wide variety of "Brushes" (actually different tip sizes), and in a great range of colors. There's a nice feature in the colour menu which lets you "mix" two colors into a "textured hue" which is actually a striped or dotted pattern mix of the colors you chose. Some really great effects are possible with this feature.

There's a "spray-gun" on the menu too, which lets you spray with colour to get the degree of shading you want, very handy it is too. Then there's a feature not usually found, and that's the "text" feature which allows you to put text onto the screen anywhere you like and in a good selection of "fonts" or type-styles. Bold, Italics, Gothic, Script and Standard are just a few of the fonts on the disk.

Also, there is a nice library of "shapes" on the program disk which can be loaded into memory and used either to build a picture from scratch or to enhance a picture you've already captured or created.

The software supports a good range of printers including: Commodore 1525, Gemini 10X and 15X, Epson 80 and 100 Series and Okimate printers (both black

& white and colour versions are supported). Cardco and Buscard printer interfaces are supported and it's a simple matter to get a printout. Most users will find a combination of the above will be suitable, for instance I got a good printout on the Star NX-10 with Xetec Super Graphics interface by selecting CBM 1525/Cardco.

On the disk there's also a program which will convert your *Koala* pictures to *Design Lab* format so that you can use the extra features provided in the software. If you're a BASIC programmer wishing to display Animation Station pictures there's a handy program supplied on the program disk which may be used as a subroutine in your own programs.

There's also a printer dump to do a graphics printout on the Commodore 1526! On the front of the touch-pad is a small switch which, when in the down position, allows the Animation Station unit to emulate a video game controller. The bottom buttons then act like fire-buttons and you steer/guide with the stylus on the pad.

If you're really into graphics you'll know already that it's great fun converting pictures from one format to another, altering them in some way then perhaps converting them back to the original or perhaps some other format. *Design Lab*, *Blazing Paddles*, *Koala* etc are all "multi-colour" format pictures whilst *Doodle* pictures (and some others) are in the "Hi-Res" format.

All in all this is a great outfit for any computer hobbyist who's at all interested in graphics. I know there are many people out there who, like myself, play around with pictures "grabbed" with one of several cartridge systems which allow the capturing of C-64 screens. I mentioned above the Cockroach Graphics Utility which does a great job of capturing screens. The Expert Cartridge (from MicroAccessories) allows picture capturing (and a lot more!) as does the Super Snapshot (above).

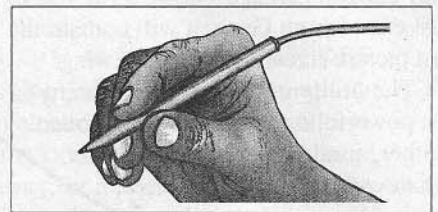
Animation Station is available at good computer shops at \$169.00 RRP.

Australian distribution by Computermate Products (02) 457-8118.

The Light Pen by Inkwell Systems

by Eric Holroyd

Inkwell are the same company who published the excellent Flexidraw system. The Light-Pen they produce is of the same high quality. The unit is sold "for use with Commodore and other personal computers" and is compatible with



64, 64C, SX64 and C128 CBM micros, and may be used in place of a 2-button mouse for input.

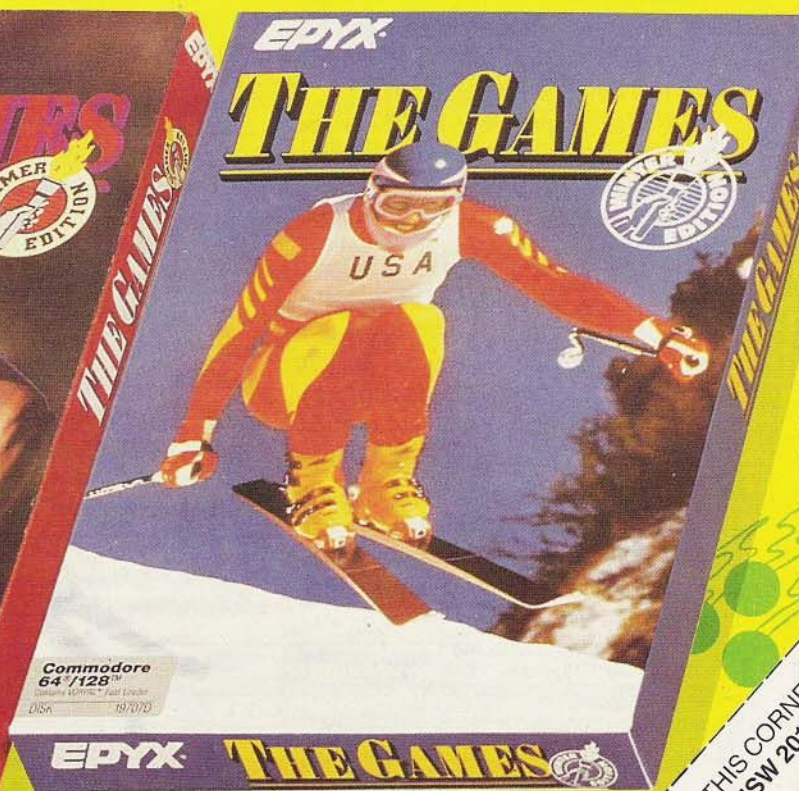
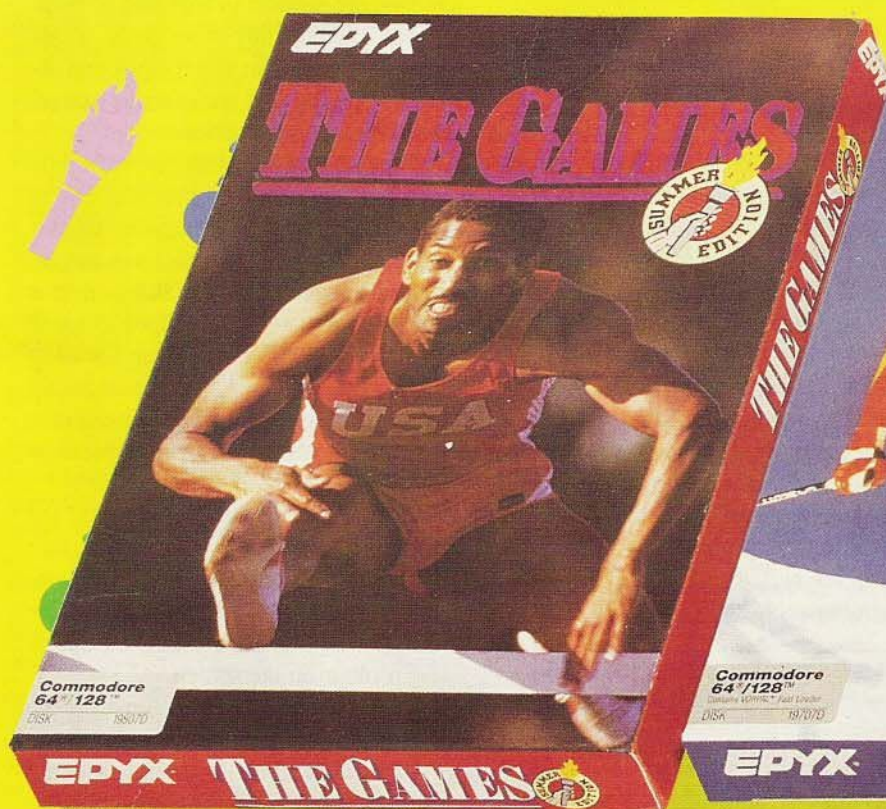
The Pen itself is nice to use, just point at the screen and touch the switch to draw or operate whatever it is that you've selected. It's quick and easy, a bit like using the Amiga mouse, but particularly good when using one of the drawing programs.

If like me, you've never tried a Light Pen before then you're in for a pleasant surprise. I've checked around a few friends and found that they're divided in their opinions of the instrument. Some like the idea of using a Light Pen for input, some don't like it. By dint of asking a few pointed questions about price paid for the unit used it seems that the ones who didn't like it were the ones who'd bought an "El Cheapo" unit. The moral appears to be once again: You only get what you pay for and you need to get a good quality unit such as this one to get the right results. Ask for a demonstration of "The Light Pen" by Inkwell, the distributor would tell you who is your nearest stockist, and see how you like it yourself.

The Light Pen by Inkwell Systems, RRP \$119 at good computer shops. Distributed in Australia by Computermate Products (02) 457-8118. ■

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GEOS Roundup

by Frank Paterson

GEOS is something special. It takes a small computer - what some of the jealous opposition refer to as a "games machine" - and transforms it into an elegant electronic working environment where text and graphics can be mixed and manipulated at will. Information from spreadsheets and filing systems can be called into your document. Files can be manipulated without ever typing a command - no more complicated syntax and the inevitable "SYNTAX ERROR". File copying and indeed whole disc copying is available without the need for separate utility programs. Hi-res pictures can be mixed with text files, and the text itself can be in a range of fonts and sizes.

Just what is available in GEOS for both the 64 and the 128, what does it do and how much does it cost?

System package

The core of GEOS is, of course, the system package which is available in two versions; one for the 64 and one for the 128. The 64 version will run happily on both computers (the 128 must be in 64 mode), but the 128 version is specific to the machine. It takes advantage of the 128's 80 column screen and greater memory; the display is quite stunning in its clarity and has a significant speed advantage over the VIC screen.

GEOS

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desktop: superior and 3D mouse
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geoWrite: easy to use word processor
diskKiller: superior disk editor
Disk Accessory: file manager, calendar, photo album, etc.
GeoCommand: disk copy, format, etc.

The 128 GEOS system will run applications designed for the 64, but only in 40 column screen mode. The system can sense if the application is restricted to 40 columns (or more appropriately, to the VIC screen), and prompts the user to change displays.

Both versions use a proprietary disk accelerator which GEOS claims speeds disk access on both reads and writes by five to seven times. This is important as GEOS is quite disk intensive, writing and reading temporary files as it goes, much in the style of CPM for those who are familiar with it.

The basic system comprises the operating system, the Desktop, Desk Accessories, a top line graphics application (*geoPaint*) and a WYSIWYG wordprocessor (*geoWrite*).

Desktop is the interface between you the user and the System. Through it you can manage and manipulate files on the disk, run programs, change input and output devices, alter your preferences for screen colours, mouse response, etc.

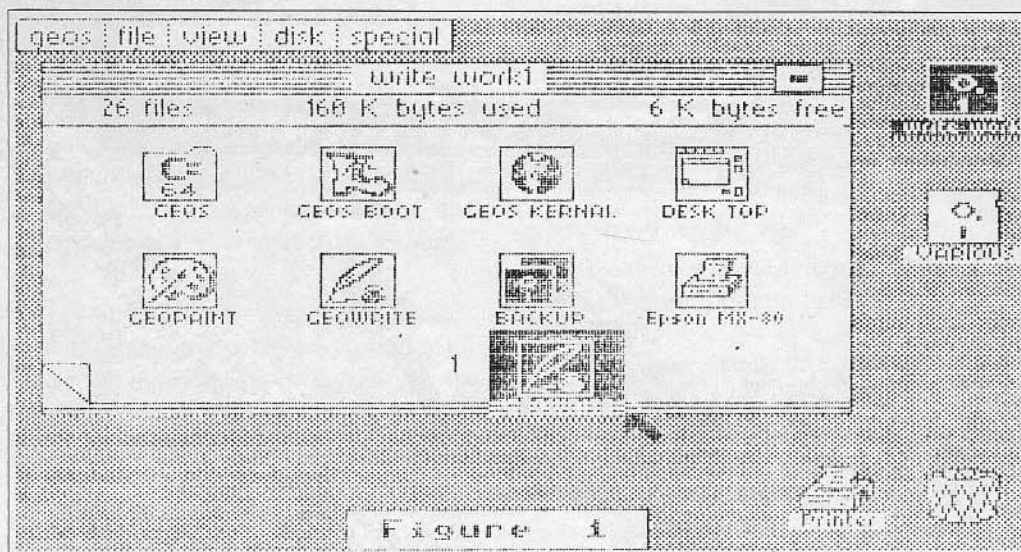
Hand-in-hand with Desktop go the Desk Accessories, which as the name suggests, are similar in function to odds and ends found on any office desk - a calculator, a notepad, an alarm clock and albums for saving and transferring scraps of text between applications.

GEOS started life with the word processor and the graphics program and is probably worthwhile for those two applications alone. Text and pictures can be swapped between them, making quite a versatile system. The wordprocessor is not full featured, but makes up for what it lacks with what it has, such as an almost endless supply of fonts in various sizes and its ability to import pictures into text.

Without doing a full review on the program, let me say that *geoPaint*, the GEOS graphics program, is a real gem. It is fully hi-res and with that go a few limitations on the ease of use of colour on the screen.

Considering that most people are using ordinary single-colour printers, that limitation is of no consequence when producing paper copy, and the advantage is that the maximum resolution of the computer is fully utilized.

If Berkeley had chosen to use multi-colour bit-mapped mode on the screen, pretty screens could be made at the cost of horizontal resolution on both the screen and printed output, and only a few users would see the benefit of the colour on paper. As in all GEOS applications, all the tools, such as



the various brushes, erasers, fill patterns, circles, rectangles, etc. are all available through icons. Point and click and away you go.

Both 64 and 128 versions support Commodore's RAM expansion packs for the respective machines, and readers who have either used them or read about them in my July 1988 article will realise the possibilities. Berkeley's approach is to use RAM expansion to provide a RAM disk, which operates very much faster than a floppy, yet to the computer looks exactly the same. The result is a great speed increase, making the system even easier and more pleasant to use.

All of the above comes in the system package which may have been supplied with your 64, and which you'll have to buy for your 128. Recommended retail prices are \$99.00 for the 64 and \$129.00 for the 128.

As I said earlier, I think GEOS is worth the money just for *geoWrite* and *geoPaint*. However we are just at the top of the list of goodies.

All GEOS applications are under continual review and updated versions are released as enhancements are developed and bugs removed, (there are remarkably few of the latter.)

Geowrite Workshop

Geowrite Workshop is a package containing an updated and enhanced version of *geoWrite*, a mailmerge program called

geoMerge, a file converter for converting text files produced by other wordprocessors and a program called *geoLaser* which takes advantage of the extraordinarily high print quality available with an Apple LaserWriter.

Some of the wordprocessing features missing on the earlier versions of *geoWrite* and found on version 2.1 in the *Workshop* are text centring, left, right and full justification, variable line spacing, search-and-replace, automatic headers and footers, decimal tab stops, an NLQ font, and many others. As this program develops, it is getting more and more into the serious league. Please, Sir, may we have columns?

GeoMerge, as the name suggests, merges information drawn from a GEOS database or electronic card file with a form letter produced with *geoWrite*. Think of the possibilities! A fancy letterhead for a club or organization drawn with *geoPaint* and incorporating text in any font, can be imported into *geoWrite* and used as a page header.

On this standard but very much customized page, you can write your form letter to be sent to every member of your organization, and by drawing name and address information from *geoDex* (the card file) or *geoFile* (the database) with *geoMerge*, each person will receive a personalized copy. No need for printed stationery - create it as you write!

GeoWrite Workshop \$89.00, *GeoWrite Workshop 128* \$119.00.

GeoPublish

If *geoWrite* had the ability to format columns in addition to its ability to handle pictures from *geoPaint*, it would almost be a desktop publisher.

However, Berkeley have produced a comprehensive desktop publishing program in *geoPublish*. With it, you can mix text and graphics (of course!), write in multiple columns, use pre-defined, convenient formats, move and re-size text, import text and graphics from other GEOS applications and much, much more.

It would be interesting to see how fast (or slow) this program runs on the 64 - there is a heck of a lot of work to be done by an eight bit processor, and of course, there is the disk access... This would be an ideal time to install some RAM expansion and use the RAM disk facility of the later GEOS systems.

Unfortunately, *geoPublish* is only available for the 64 at present. One would hope that a 128 version is on the way to take advantage of extra RAM available and, more particularly, of the 80 column screen. I am hoping to review this program in this column soon. Watch this space.

GeoPublish (64 only) \$119.00

Productivity programs

Productivity programs to help complete your GEOS library are *geoCalc*, a

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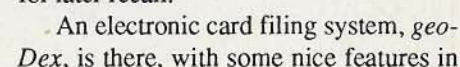
GeoCalc \$89.00, *GeoCalc* 128 \$129.00, *GeoSpell* (64 only) \$59.00, *GeoFile* \$89.00, *GeoFile* 128 \$129.00.

A nice utilities pack is available, called *Deskpack*. It contains a graphics converter (called *Graphics Grabber*) for transforming graphics from other programs such as *Print Shop*, *PrintMaster* and *Newsroom* into GEOS format, suita-

DeskPack and *DeskPack Plus* \$59.00

GeoProgrammer (64 only) \$119.00

Our review copies of GEOS products from Computermate Products Pty. Ltd, 9 High St, Mt. Kuring-Gai, NSW 2080. Phone (02) 457 8118. For other distributors see the Software Guide in this Annual under the heading GEOS. ■





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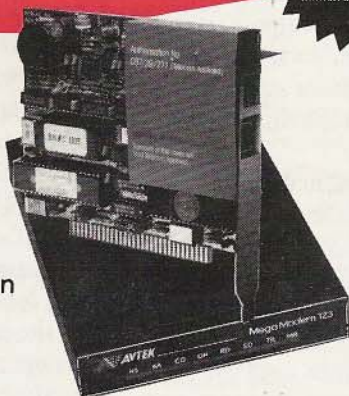
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Desktop Publishing on your C64/C128

Since the birth of GEOS, software designers have taken a fresh look at the C64 as a serious machine. Now you can chose from not one, but three reasonably well endowed desktop publishing packages. Andrew Farrell, editor-cum-publishing magnate, set magnify to 200% for this close up comparison.

I've used a Macintosh. Its sleek, clean lines coupled with a laser printer made desktop publishing possible for our magazine some four years ago. Today the Amiga is on the brink of replacing our existing set-up. We look forward to being able to produce The Australian Commodore and Amiga Review using the very computers we write about.

What I wasn't expecting was a chance to see how the C64 would do the job! Desktop publishing has long been in the big memory only league. However, the tide has turned. Professional styled packages are available that run in 64K.

We're not talking your next corporate report, or colour product brochures. However, if you run a club newsletter, would like to produce small flyers, signs or business cards, the following programs will do the job.

What is Desktop Publishing?

Back in the days when designing page layout required gum and a scalpel, magazine layout was a tedious job. Things didn't always end up straight on the page, and occasionally you were left with odd bits of text with nowhere to go.

The task started on computer. A wordprocessor, in our case a Wang, was used to accept all the articles. A disk containing the relevant files was then sent to the typesetter who produced long strips of paper known as bromides. At the top of each was the article heading. Down the paper went the article in one big long stream. This strip had to be cut into parts and fitted on the page by a layout artist. He would work on a huge stiff cardboard

sheet, containing two pages.

The artist added pictures, and hopefully a little sparkle, to the look of each page. Everything had to be glued using a special gum that allows strips to be lifted and moved if required. This is easier said than done.

Once finished, it was back to the office where the end result was proofread to make sure nothing got left out. Invariably it was really too late to make any changes by then, so most mistakes went to press.

Desktop Publishing: Advantages

Today, we go straight from wordprocessor to page layout program. This is a special package which enables text and pictures to be arranged on the page, on screen. Normally, each column is arranged as blocks. These blocks may contain text, an illustration, or just a blank square where a photograph should be inserted later on.

You can link boxes, make text flow around a picture, zoom in and examine things close up, or stand back and see how the whole page looks. In this way, the finished product is visible before your eyes. Odd bits of text can be cut by the editor, or fiddled with until they fit on the page.

You can choose your own type faces, type size and style. It's easy to fix mistakes, even from within the desktop publishing program, which has word processing type facilities.

Less time is involved, and fewer people. So in theory, there's less chance of errors creeping in.

Desktop Publishing: Disadvantages

One person has to do the whole job. Someone who is good at page layout might be bad at editing. But chances are, with such a program they'll do a fair bit



of both. Alternatively, some who consider themselves the arty type, and grab the nearest page layout program and go into business, might not have any design sense. The result is a mess.

Desktop publishing can lull people into a false sense of security, thinking it must turn out all right, it was done on the computer. Layout is really quite tricky, and best left to someone who knows what they're doing. What you need is a design artist who is prepared to, or knows how to already, use a computer desktop publishing package.

(Enter Amanda Selden, our mainstay layout person - and her sidekick, expert cover designer, and page layout person himself, Tristan. Under the guiding hand of Brenda Powell, I reckon this hard working threesome have done a darn good job of improving the magazine's layout of late.)

The temptation to test your design so far, by doing a printout, leads to huge amounts of wasted paper. Our own publishers office is witness to that fact.

Sometimes what looks good on the screen, looks ghastly on the page. And other times what looks good when it comes out of the laser printer, looks terrible after the magazine printer has played around with it.

Desktop Publishing: On the cheap!

You probably can't afford to employ a layout artists, and the services of typesetters - who are known to charge very well. Chances are you're not about to hit a print run of over 500 copies, and the last time you considered desktop publishing was during a *Towards 2000* story on working from home.

If you answered yes to all the above, you qualify for desktop publishing on the cheap. Drag your C64 out from under

the *Good Weekends*, *Racing Guides*, telephone bills and junk mail. Dust down your disk drive, warm up your printer and prepare to publish.

The solutions have arrived. If you've got GEOS, boot that up. If not, don't sweat, there are alternatives. All are slow, all are cumbersome, but then, we're working on the cheap here. So, let's get to it.

Newsroom

Springboard sprang into the DTP scene on the C64 a good time ago. By today's standards, *Newsroom* is a bit long in the tooth. Then again, it has some good features, admired by its users.

The package is capable of flyers, brochures and forms on either legal or letter sized paper. It's an easy to use, menu driven, multi-part program whose output doesn't really compare with more recent entries to this sphere.

Play begins with a two column, multi-panel page. You can have a banner across the top, such as your newsletter logo, or company letterhead. Each column may contain three or four panels. Starting from the Picture menu, you use a joystick to select any one of six possible departments: Banner, Photo Lab, Copy Desk, Layout, the Press, or Wire Service. Some of these may sound foreign to traditional magazine publishers. *Newsroom* does venture into a few areas others still don't touch on.

Pluck illustrations out of the PhotoLab, combine them with copy from the Copy Desk, place on a panel, and you've got a page. You can move your picture around, and the text will flow around it wherever you place it.

For text, there are five fonts in small and large sizes. These may be entered directly into a panel, rather than from a wordprocessor. On screen you only view one panel at a time. Once a panel is filled you must save it and progress to the next.

Once you've got enough panels to fill a page, dash over to the layout desk, paste them down and then from Press, print them out on your dot matrix printer.

Special features unique to *Newsroom* include the Wire Service. Here you can send panels and photos, banners, or complete publications over the phone via modem. Your contributors can upload articles and panels to you, just as we do here at the ACAR. The best part is, *Newsroom* runs on several computers including the IBM, and Apple. You can accept information from any, providing its in *Newsroom* format.

Newsroom boasts a huge amount of clip art. Over 600 pieces are included on the clip art disk, and others are available. This is *Newsroom's* forte

without a doubt. Other excel in a more overall sense.

GEOPublish

Berkeley Software's GEOS environment is ideally suited for desktop publishing. It's a graphic based system, and as such, can readily display text in WYSIWIG format (What You See Is What You Get).

To get rolling, it's the usual GEOS file and disk shuffle. Work disks, backup copies, and files need to be all placed in the right spot before you start. A RAM-drive is recommended, greatly increasing speed and workability. 128K will do the job.

To start you create a master page. It's a look and feel guide for your creation. You can save this design to speed up production of your next publication.

At the top of your master work page is a ruler, which also extends down the side. Guidelines, appearing as dashed horizontal and vertical lines, act as a helping hand in controlling the placement of text, headings and illustrations. These lines don't appear on the end product.

There's room for up to 16 pages, from one to four columns in width. A library of sample master programs is included on the *geoPublish* disk. With your master page ready to go, you can start pasting down text and graphics. Files from *geoWrite* may be accepted - these are converted into the fonts you want and the type styles selected.

Text Grabber will obtain text from other formats such as *EasyScript*, or *SuperScript*. You can edit these files in *geoPublish* once they've been transferred. In page graphics mode you can do some fun tricks with headings. Original headlines, or your own

GEOPUBLISH



Milwaukee Area Commodore Enthusiasts THE Milwaukee computer club NewsLetter MARCH, 1988

MILWAUKEE AREA COMMODORE ENTHUSIASTS
P.O. BOX 26218
MILWAUKEE, WI 53226
Meetings are held on the 2nd and 4th
Sundays at 2:00 PM at 200 N. Capitol Dr. in the
Bowl Room of the Petroff's Bowling Center.

THE OFFICERS ARE:
President: Dan Hesse, 414-462-2640
Vice Pres.: Dan Hesse, 414-462-2638
Secretary: Sharon Bogmans, 414-462-4999
Treasurer: Sharon Bogmans, 414-462-4999
Asst. Treas.: Sharon Bogmans, 414-462-4999

Membership dues of \$20.00 per family are payable every 12 months.

New Home for M.A.C.E.

APRIL is the month of the move

to our new location at 200 N. Capitol Dr.

UNTIL THEN WE WILL CONTINUE TO MEET

AS USUAL AT PETROFF'S BOWLING CENTER

for the March 14th & March 28th meet

The next meetings are:

March 14 AT PETROFF'S BOWLING CENTER

March 28 AT PETROFF'S BOWLING CENTER

April 11 AT PETROFF'S BOWLING CENTER

April 25 AT PETROFF'S BOWLING CENTER

NON-MEMBERS ARE WELCOME TO JOIN.

M.A.C.E. is a non-profit user group with an all volunteer staff.

CLIP OUT THE SECTION BELOW and use it

to apply for new membership, offer

suggestions, register complaints, submit

ideas for demonstrations at meetings,

special interest groups, committee

activities, nominations for club officers,

proxy voting, questions, or anything else

you think needs attention.

Mail it to our P.O. Box if you have

to meet a meeting or drop it in the

suggestion box or hand it to an officer

at the next meeting.

Fill it out as completely or incompletely

as you want. It's OK to omit any item or

add anything you wish. Even anonymous

submissions are better than none at all.

I M.A.C.E. all purpose clip out form

Name _____

Address _____

Phone _____

Computer type: _____

Printer, Modem, etc.: _____

I can make my computer do: _____

I wish I could get my computer to: _____

Other comments: _____ (over)

2nd BYTES THE USED / NEW COMPUTER STORE 9721 N. Greenfield Ave. BUY-SELL-TRADE 774-1155 EQUIPMENT-SOFTWARE

Happy Birthday
M.A.C.E.
5 years old
March '83 - '88

annual elections MARCH 14

be sure to be there to VOTE!

Micro Accessories of S.A.

ALWAYS A STEP AHEAD

EVESHAM MICRO'S:

DOLPHIN DOS PARALLEL OPERATING SYSTEM 64/128	\$169.00
DOLPHIN COPY	\$33.00
FREEZE MACHINE CARTRIDGE	\$99.00
FREEZE FRAME MK 3B CARTRIDGE	\$65.00
FREEZE MACHINE V3.0 UTILITY DISK	\$24.95
FREEZE FRAME V2.0 UTILITY DISK	\$24.95
QUICKDISC + MK II FAST LOAD CARTRIDGE	\$54.95
USER PORT EXPANDER CARD	\$33.00
DISK DISECTOR V5	\$54.95

COCKROACH SOFTWARE:

TURBO ROM REPLACEMENT KERNAL FOR C64	\$42.00
GRAPHICS UTILITY CARTRIDGE	\$69.95

MICRO ACCESSORIES OF S.A.:

ANTI KNOCK DEVICE	\$14.95
AMIGA SENATOR 3.5" DISK DRIVE	\$299.00
AMIGA MASTER 5 1/4" DISK DRIVE	\$459.00
AMIGA MIDI INTERFACE	\$44.95
EXCELERATOR DOS PARALLEL OPERATING SYSTEM	\$199.00
EXCELERATOR + PLUS DISK DRIVE	\$299.00
ECONOMICAL FAST LOAD CARTRIDGE	\$24.95
PARALLEL CABLE	\$22.00
PANASONIC PRINTER P-KX1081	\$399.00
INTERFACE: SUPER GRAPHICS JUNIOR	\$129.00
RESET CARTRIDGE	\$12.95
QUICKSHOT MK II JOYSTICK	\$24.95
64 SLIMLINE REPLACEMENT CASE	\$24.95
64 STEREO SOUND SYNTHESIZER	\$44.95

TRILOGIC:

DATASETTE DOCTOR	\$34.50
EXPERT CARTRIDGE	\$108.00
EXPERT V3.2 UTILITY DISK	\$24.95
EXPERT V3.2 SYSTEMS DISK	\$24.95

SECTOR SOFTWARE:

DOUBLE IMAGE II	\$54.95
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MICRO ACCESSORIES OF S.A. UNIT 8, HEWITTSON RD, ELIZABETH WEST
SOUTH AUSTRALIA 5113 Phone (08) 287 0191

MicroAccessories of S.A.

ALWAYS A STEP AHEAD



the
expert
WITH ESM

For Speed, Power and Ease of Use

FREEZE MACHINE

Features include...

- Totally unstoppable Freeze
- Fast save routines
- Ultra efficient file compactor
- Game killer
- Lazer and Turbo Fastloads
- Integral Reset button
- Tape turbo facilities
- 12 second disk Format
- Selective file copier
- Selectaload
- Plus many more!



Chills the rest!



"Quickdisc+" Cartridge
Mk II

DOLPHIN DOS.

Dolphin DOS

Install Dolphin DOS and prepare to be amazed! LOADs & SAVEs files up to 25 times faster, LOADs 202 blocks in less than 5 secs, yet still maintains standard CBM disk format! compatible with the majority of commercial software, it is now the established standard parallel operating system for the 64/128 using the 1541 disk drive, and includes many extra DOS & BASIC commands, a built-in monitor and Centronics printer driver, plus numerous other useful features.



Disc Disector V5.0

Our popular disk backup/utility package features a wide range of powerful programs. The 'nibblers' provided will backup most all protected software, and includes options for 3 or 8 minute copy and usage of 2nd drive. Utilities include: Menu Maker, Disk Orderly, Disk Rescue, Discmon+, Scratch/Unscratch, Fast Format, Disk to Tape, Selective filecopy, and many more. Also compatible with 128, 128D & 1570 drive.

imported graphics can be stretched, scaled and defined to fit into virtually any region.

The toolbox lets you add lines, circles, polygons, and other shapes to your layout. Fill, move, and multi-layers along with a variety of other tools are also present. Desk Pak 1 has a Graphics Grabber which enables you to import graphics from Print Shop, Newsroom and Printmaster.

Plenty of flexibility in the printers department - with all the usual GEOS printer drivers, plus the ability to access a laser printer if required using the Postscript page description language.

PaperClip Publisher

Electronic Arts have combined forces with Batteries Included and Gold Disk to produce this latest and possibly most powerful entry into the desktop publishing fray. The program looks remarkable like *Professional Page* on the Amiga. Many of the same tools and gadgets are included, and the screen layout is basically the same. However, as far as pull down menus go, it's a whole different ball game.

Once again the first job is to create a work disk. This is a very tedious process best carried out using a two drive system. Each individual font file and program overlays are copied one at a time. Fortunately the create work disk program does recognise device nine. Shame the main program doesn't as this would have alleviated the need to even create such a disk.

At the back of the manual is a fine tutorial that takes you through all the major steps of page creation. There are special requestors for the default settings of your page, and any box you then place on it. These greatly speed up production. Up to fifteen columns may be used, as long as their total width does not exceed the defined page width.

Calendar Of Events

June 1988

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DATES OF INTEREST

MAY 26 - TELECOM SIG - 7:00 p.m. - Held at Ron Walker's residence at 2730 Billmore Avenue. Call Ray Smith at 365-6355 for more info.

MAY 31 - MACK'S Main Meeting - 7:00 p.m. Held at The Learning Arts Center on Madison Avenue next to Crumpton Blvd.

JUNE 7 - MACK'S Educational Meeting - 7:00 p.m. same place. Ongoing classes in subjects of interest to everyone are conducted here at this time. If you want to learn about something, come and ask questions.

JUNE 7 - BASIL SIG Meeting - 7:00 p.m. - same place as Ed. Meeting. Call Edgar Weissen, SIG Leader, at 285-5720 for more info.

JUNE 9 - MACK'S Board of Directors Meeting - 7:00 p.m. - Shoney's Restaurant - Atlanta Hwy. near Darnold Shopping Ctr. This meeting is for all officers of MACK'S to discuss topics of interest and concern to the club as a whole. All members are invited to attend.

JUNE 14 - Macintosh Volume Problem Solvers SIG Meeting - 7:00 p.m. - Held at various locations. Call T.J. Nelson, SIG Leader, at 361-4765 for further info.

JUNE 16 - HAM SIG - 7:00 p.m. at Dept. of Public Safety (State Trooper Headquarters on corner of Federal Drive (Ala. 21) and Coliseum Blvd. Call Al Edman, SIG Leader, WHA No. 272-8130 for further details.

JUNE 20 - ALMA SIG - 8:30 - 9:30 p.m. at Bldg. 823 (Family Services) on Gunter AFS. Call Dave Denton, SIG Leader, 271-4836 for further details.

JUNE 28 - MACK'S Main Meeting - 7:00 p.m. - Held at The Learning Arts Center on Madison Avenue, next to Crumpton Blvd. All members are urged to attend (and bring a potential new member).

JUNE 30 - TELECOM SIG - 7:00 p.m. - Meeting place to be announced later. Call Ray Smith at 365-6355 for more info.

MACHINE LANGUAGE SIG -
C-130 SIG -
LADIES -

MAY 1988

LOCAL BULLETIN BOARDS

Board Walk (PC Board) (3-12, 24-7)	281-9335
Hangar One (Commodore) (3-12, 24-7)	288-7284
Hot DOS & Beer (PC) (3-12, 24, 24-7)	244-7853
Idea Board II (TBBS) (3-12, 24, 24-7)	277-3882
Lafarrells (Commodore) (3-12, 24-7)	288-0255
Manno's Memories (Opus) (3-12, 24-7)	361-0543
Monty PCUG (RIBBS) (3-12, 24, 24-7)	244-6969
Orient Express (Atari) (3-12, 24-7)	277-4453
Park Town (Commodore) (3-12, 24-7)	272-4077
The Queue (Wendy) (3-12, 24-7)	277-6323
Smitty's Place (Wendy) (3-12, 24, 24-7)	284-0013
StarScan (Sm) (Opus) (3-12, 24, 24-7)	279-7313
TellyPhone (Atari) (3-12, 24-7)	244-1901
The Zoo (Commodore) (3-12, 24-7)	272-4077

These are the Bulletin Board Systems in our local area. MACK'S 'The Interface' assumes no liability for the accuracy of these numbers, or whether or not they are, in fact, valid bulletin board numbers. If any of these numbers have terminated, the only way we will know it is if someone tells us so that we can strike it from the list.

The Faces of Q-Link

Here are some of the Q-Link shorthand symbols used on Q-Link and other bulletin boards:

:)	smile	.*	kiss
!)	bug	:c	post
:)	Wink	:(frown
:(crying	:D	big smile
BRB	Be right back		
bak	Back at the keys		
LOL	Laughing out loud!		
X	Not saying a word!		
:P	Sticking out tongue		
>	Mischiefous smile		
afk	Away from the keys		
OTF	On the floor, laughing!		

Date Fun!!!

MACK'S The Interface 3

Printers catered for include the 1526, Epson range, Commodore range, OKI20, and Star NX-10. Others on the list are not readily available in Australia. There was no Postscript driver for a laser writer - a slight drawback for real professional users.

Loading and saving files invokes a basic file requester listing your choices, or enabling you to swap disks and read a new directory. There are no other disk commands such as format or a standard directory list available. Make sure you have a formatted disk before you start work.

A small amount of clip art is included, however you can import from just about any other program including *Doodle*, *Newsroom*, *Print Shop*, and *Print Master*. A full featured package that has many of the more standard desktop publishing type features.

Gadgets or tools down the left side include magnify - a single step zoom. Optional control of the display of guidelines, the borders of boxes, and the rulers. A small box with a window may be positioned anywhere on your page, making viewing your job fairly fast.

You can link boxes, and then flow text through all of them in one fell swoop. Text may be edited using the in built text editor - which is a simple yet effective program. Alternatively you can import other text format using the utilities function, as you may also with graphics.

Keyboard commands are used for some of the functions, which are logical and easy to remember through use. Once you've got everything straight, select PRESS and you are ready to print. The required printer driver is selected using a separate program. This shows up in the print preferences box which allows you to choose the start and end page, and number of copies.

Overall

Well, the choice is still yours. *Newsroom* is a simple to use but relatively underpowered by today's standards. *Geo-Publish* has all your usual GEOS type features, and quirks, if that's the environment you like. For true laser results, that's the only one at this time. If not, there's *PaperClip Publisher*, an affordable, powerful alternative that is easy to use, but has plenty of kick.

If you do decide to go to laser quality, and can't afford the minimum of \$5000 it costs for a printer, try a bureau. You can send your Postscript file on disk to them and have it printed. You may have to use the *Big Blue Reader* or similar to get it onto IBM format, or transfer over a modem.

For dot matrix owners, printing can be a slow process, especially on the 1526. A 24-pin printer will produce bet-

ter results, providing the program can drive the model you purchase. Often quick printed newsletters will look a little better than the original, as the process naturally darkens, helping get rid of those little dots in each letter.

Since the C64 is a little slow at the job of pouring text into a box, you must take your time. Think ahead and plan. None of the programs tested were very forgiving if you made a mistake. It was just a matter of sit and wait until it's finished and then undo.

To really master the art of page layout takes time and experience. Examine other magazines for ideas, and see how they arrange pictures, headlines, captions and the larger introductions to articles. Good layout can greatly enhance the readability of an article, and make it attractive to someone just flipping through the pages. Bad layout can ruin the best written piece, so be warned.

It's not the ultimate, but it's a good start. You'll get far better results than by hand, even if they do take a tad longer, it will be worth it.

Some General Hints:

- Always fully edit and spell check your text prior to importing it into the page layout program. Whilst these package sometimes have editing facilities, they tend to be slow and difficult to follow.
- Do a rough of your design on paper first, to get an idea of the feel you're trying to achieve.
- Add the text and especially pictures last. Once these are on the page, things tend to slow down a fair bit. Just get all your boxes in the right place, and correctly linked first.
- Narrow columns are easier to read than huge wide ones. Try at least two or three to an A4 page. Try not to have to many different fonts or type

styles on one page - it looks messy and difficult to read.

● Give illustrations plenty of breathing space - don't cram text around them. Likewise with headings. Clean layout looks better than some of the real arty stuff you can do. Good for one off brochures or something that you don't necessarily want people to read in full. However for newsletters and the like, keep it simple.

Where to get them:

Newsroom

Dataflow

Phone (02) 331 6153

RRP \$56.95

geoPublish

Computermate

Phone (02) 457 8118

RRP \$89.00

Paperclip Publisher

ECP

Phone (075) 96 3488

RRP \$49.95

Glossary

Body Type: The type used for the major portion of the text, the part that supplies information as opposed to enticing you to read on.

Very few designers seem willing to agree but research shows consistently and incontrovertibly that type used for body text should be serif - that is; , the letters should have serifs, extenders best seen at the top and the bottom of a capital I - it should be in upper and lower case, not capitals, and should be set justified - flush on both the left and the right hand sides.

Camera Ready Copy: camera

ready pages are in a form ready for reproduction. To get the pages to this stage you may need to lay the text out in columns, align it, supply headings, specify types, place page numbers and headers and footers and either place graphics or indicate where they are to appear.

DPI (dots per inch):

A measure of the resolution of graphics screens, printers and other output devices such as typesetters. In theory, the higher the number, the better the image quality but there is not a direct relationship.

Wysiwyg: What you see is what you get. The computer screen previews the exact appearance of the document as it will print. Most serious desktop publishing programs are wysiwyg.

A New Member by Bill Gaudet

As one of the newer members of your Commodore club, I would like to try to tell you about my first two meetings that I attended, and what help I have been able to obtain from them.

I started work on my computer in December of 1987. The first few times were a disaster, believe me. Of course at that time I only had the keyboard, so I think some of you may be able to relate to that! Shortly after I got my disk drive and printer. It was around this time I was fortunate to meet Bill, Joe & Doug at Astron Software who showed me the basic steps around the wonderful world of computers. I believe it was Joe that first told me about your club. He explained all the good things you do for your members.

Needless to say I didn't heed his advice right away. I stayed home to try and do things for myself and soon found out just how stupid this could be.

It was on the advice of Joe from Astron that I got a modem. There I found a B.B.S. board with your club application on it.

This time I called Roy Greer and said in a calm voice "HELLO". And help was there for a stranger he had never met. Then it was my great pleasure to meet with Linda Friars who volunteered to come to my home to assist me in my endeavor to learn more about computing.

She took off her free time

to come to my home and do this for me. That is when I decided to join your club. I thought if your club members are kind enough to do this for me it must be some kind of friendly club.

Believe me, when I say I was not disappointed when I attended my first meeting. I was treated great by everyone. When some found out it was my first time there they went out of their way to make me feel welcome.

My first night was look and listen sort of night for me. Of course it also was time for my first contest session that I won four floppy disks. Of course I cheated a little by listening to three other people give wrong answers and putting it together answered correctly.

I was shown your wonderful library of books and disks that came in real handy on my second visit.

My next meeting I met more of your fine members, and watched your second round contest ~~GOOLPS~~. It was fun to see so many having such a good time. It was more fun to see Anne Magee teach the guys how to play the game!!

In conclusion if all my evenings are spent as good as my first two I would say you should be very proud to have people the likes of Roy Greer, Linda Friars, Gordon Emmerson and the rest of their fine committee run your club. And I would be in error not to mention the three men who started me out -- THANKS Joe, Doug & Bill. I will always remember your kindness.



3

Important

We have received word from the Aitken Bicentennial Centre that they are going to charge us \$15.00 per meeting starting in July. Please attend the meeting on May 26 to discuss what we are going to do about this.

PaperClip
Publisher

Demo

Library Night
May 19



Support Your
Club

Buy Disks

\$8.50 per box of
10 any library
night

Communications

Over the past twelve months, telecomputing has continued to grow. New avenues of communication have opened up with the advent of the FIDO network in Australia, and a host of new BBS programs. There's more systems to choose from, and there's more systems that have more than one line.

What's all the fuss about? How do I get into communications? What can I look forward to?

Well, it's a lot of fun, and you'll get to meet people that use the same computer as you. They've had the same problems, and hopefully a few of them will have solved some you have. Share your knowledge, swap programs, or forget computers and argue about the football, Olympics, arms race or just about anything you care to imagine.

Most of the services you need to call for all this razz-a-ma-tazz are either free or fairly cheap. A full listing appears at the back of this publication, along with an explanation of how to use the listing. Nevertheless, you're bound to run into a few new terms. Here's what they mean:

BBS: First off the rank, a Bulletin Board System. There's one out the front of every school or library, only this time we're talking about the electronic version. The messages are placed and read via your modem. Normally there's only one caller at a time (except on the real big systems where there may be hundreds). You can read messages that have been left, and place new ones. There's also programs or magazine articles to get and updates on various lists.

Modem: Its a word made up from two more complicated words - MODulator/DEModulator. In essence it's a little black box that turns information into sounds that can then be sent down the phone line (Modulates). At the other end another modem does the opposite (Demodulates). They range in price from \$200 dollars up to \$1500. Modems connect directly to your C64's user.

SYSOP: Pronounced SIS-op. He's the guy (I don't know any female sys-

sops), who runs the BBS. He makes sure that everything stays above board, that the system is up and running every day, that new members are entered, old ones deleted, and just generally maintains everything. SYSOPS do a fantastic job as a group. They provide a service on the cheap, and you owe it to them to abide by their rules.

Now that's the basics. You'll find more terms in the glossary at the end of this article.

Once you're on a BBS you have access to basic messaging facilities, free public domain programs, and some news services.

On Viatel you will have access to a lot more interesting albeit costly services. There is a good amount of free information as well provided by various companies and news services.

● **Electronic Mail and Bulletin Boards.** Messages may be sent to other users, or groups of users. Special interest areas cater for a variety of subjects, including a range of non-computer matters. This service is the predominant feature of amateur bulletin board systems and is also available on Viatel.

● **Electronic Shopping and Banking.** Several banks offer account access via modem. It's possible to transfer funds, obtain an account summary and pay bills. Electronic shopping, with a little help from your credit card, makes available many hard to come by products, as well as day to day items. This feature is only available on Viatel, with the Commonwealth and Westpac banks in particular offering facilities.

● **Electronic Education.** Macquarie University offers a vast range of services, as do several smaller systems. Subjects are especially useful for the school-aged. Viatel offers Special Interest Group Areas which are looked after by paying companies.

● **Telecommuting.** Why not work from home? With a wordprocessor, modem and other business software, many jobs can be carried out from the

comfort of your own study. Start up a wordprocessing bureau, handle mailing lists, typing up a thesis, or perhaps launch your own agency of some description. Using Viatel it is possible to send a fax to anybody or electronic mail to any other Viatel user throughout Australia.

● **Electronic Broking.** Place your orders directly, the instant you see the rise and fall of stocks. At least six brokers offer such a service, several using Viatel. Not recommended for the faint at heart.

● **Electronic Monitoring.** TAB results, weather patterns, national and international news, tidal charts and much more is available using Telecom's Viatel network.

● **TeleGaming.** Several games, including *Flight Simulator II*, offer the unique ability to enter two player mode, with the second player's information accessed via modem! Viatel offers in various SIGs games which occasionally offer prize money to the winner. In Microtex 666 a huge intergalactic battle game is played by hundreds of contestants over a period of weeks offering considerable amounts of money to the winners.

Communications Software

C64 owners have seen terminal programs come and go over the years. We started out with the likes of *VIP Terminal*, which is very good. Problem is, you can't buy it any more unless there's a chance copy kicking around. There's lots of public domain programs, some of which appear on various issues of our disk magazine.

However, if you're really serious, there's really only one option that's easy to come by. *GP-Term* has seen a number of improvements over the years, and now stands as the best C64 terminal program around. It's very full featured and handles both ASCII and videotext.

Chances are if you're buying a Netcomm modem, there will be a package deal going with the *GP-Term* software.

Hardware

Searching for the best buys is a tricky task. Dozens of brands with vast differences in ability exist. At the most basic level, the biggest variation is the speed at which these little black boxes can send and receive information. This is measured in bits per second or the baud rate. In common practice most home users will use either 300 or 1200 baud, which is roughly equal to 30 or 120 characters per second respectively.

Around 30 characters per second is the speed at which most people read. However the faster speeds are very useful, especially in transferring files or programs.

Viatel, a service provided by Telecom, uses a special 'split' baud rate, where the sending and receiving speeds are different. Information is received by the user at 1200 baud, but sent at a sluggish 75

baud. This is fine when you are mainly viewing or retrieving information.

Cheaper modems support only 300 baud or perhaps 300 and 1200/75. This should suffice for the moment, but once you've been treated to a dosage of 1200 baud, you'll be forever sold on the higher rates of operation.

We've reviewed a few of our favourites over the months. Once again, we take a flashback over what we said, and update the reviewer's comments.

There is one important thing to keep in mind. The Commodore 64 does not have a proper RS-232 port. It has got a user port, and many modems will connect directly to this. Use a true RS-232 modem and you'll also need an RS-232 interface. You can build your own - see a user group in your area for details - or buy one for around \$60-\$80.

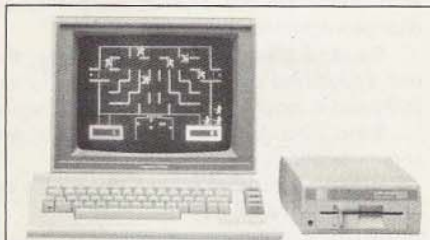
Avtek Micro Comm 64/128 (previously known as the Netcomm Pocket Modem)

A full 300, 1200/75, (2400 upgrade soon) and 1200 baud modem for just \$299. Boasting a one year warranty, and handy pocket size for computing on the

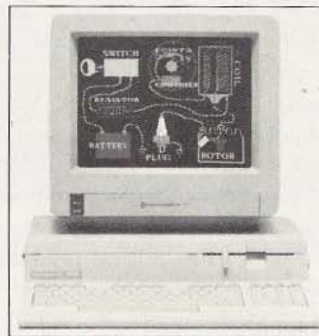


UNITED COMPUTER GROUP OF AUSTRALIA

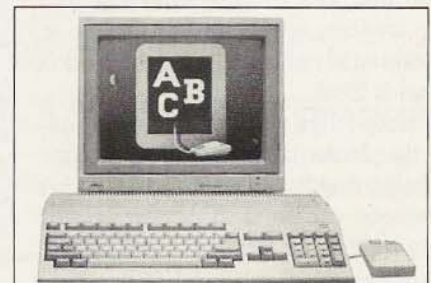
64C



128D



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 Scarborough Fair Shopping World
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 (075) 325 133

move, this little winner is top value. It just pops straight into the back of your C64.

The modem is about the size of an audio cassette except twice as thick, and comes with an excellent manual. There are no indicator LEDs, except a power lamp - which can be selected to act as a carrier detect lamp. Once you switch on, the modem is on, there is no power switch. Connection to the phone line is achieved by a US type click connector, and about one metre of cable.

Features of the MicroComm are a marked improvement over earlier models. The standard Hayes AT instruction set is built-in, and a summary of the relevant commands included on a separate card.

Dialing may be either pulse - the standard still used in most areas of Australia - or tone - currently being introduced in some areas.

Other functions include a self-diagnostic test, modem speaker control, modem message control, redefinable control characters, and timing controls.

If you have several computers, the MicorComm is one of the easiest to move between machines. There are fewer cables, and less overall bulk. For user group leaders, setting up on the move, and continually shifting gear, the Pocket Modem is ideal.

Construction wise, it's a robust device, that looks like it could even cope with being trodden on, or dropped. I don't recommend you put it to the test, but the feeling is there.

It has all the features a budding hobbyist would ever need - and the auto-answer function could even provide the

basis for a Bulletin Board System. Unfortunately, there is no auto-detect, so the calling modem would need to operate at whatever speed you set up at. RRP \$299.

Avtek Megamodem

The Avtek Megamodem came packaged in colourful box professing all the attributes of this little marvel.

The unit comes in two models; Avtek Megamodem 12, Avtek Megamodem 123.

The user manual progresses through every point that could possibly arise whilst using the modem, including a complete list of what to do if the modem appears to be faulty (point number one is READ THE MANUAL!). Avtek offer a 12 month warranty period from date of purchase if registration is completed and posted.

The modem is black in colour and has a series of indicator lights along the front panel - these show the various states of the modem such as auto-answer, on-line and high speed baud. Automatic dial, answer and disconnect. Pulse and tone dialling supported. "Hayes Smart modem" compatible. 123 - 300 and 1200 bps, 123 - 300, 1200/75 bps.

Considering that the Avtek Megamodem is produced in Australia, you can expect you would receive an abundance more for your money than with imported competition. Product support is also easier to deal with when a local product is concerned.

Megamodem would be my first choice in buying a modem for my Amiga or PC.

Avtek Pty Ltd, PO Box 651, Lane Cove, 2066, Ph (02) 712 3733. RRP \$325 for the 12, \$347 for the 123.

Glossary :

Acoustic Coupler: A device that allows modem-generated audio signals to be transmitted into and received from a telephone handset. The handset is placed into rubber cups on top of the coupler. A small transducer at the bottom of the cups produces the actual signal.

ACK: Acknowledge. Yes, I received that last byte, or string of bytes. Normally only used in file uploading or downloading.

ANSI: A terminal protocol.

ASCII: American Standard Code for Information Interchange. A seven-bit code used widely in data communications to transmit the letters of the alphabet, plus the standard punctuation marks and certain control characters. Every character has a corresponding numeric value that is common on most home computers. This allows different types of machines to speak with each other.

Auto-answer Modem: A modem that can answer an incoming call by generating a carrier tone that signals the originating modem its call has been received.

Auto-dial Modem: A modem that can simulate a telephone dialer using either pulse or touch-tone dialing signals.

Austpac: Packet switching network provided by Telecom. Allows computers who talk at different speeds and languages to exchange information.

Baud: A speed expressed in bits per second transferred over a communications line. 300 baud is roughly 30 characters per second.

Bell: The American standard for data communications.

Binary: A number system using base two rather than base ten as in decimal.

Bit: Short for binary digit (either 1 or 0), the elemental unit of digital information. Every character is made up of several bits (usually eight). A bit is either one or zero, corresponding to pulses that may be transmitted audibly on telephone lines.

Buffer: Often called capture buffer. In general, a temporary storage place for data. A capture buffer is temporary storage for data "captured" from a communications link.

Bulletin Board: A computer you can access via modem especially for leaving messages to other users. Various subject areas are available, and normally programs can also be uploaded or downloaded.



Byte: On an eight bit computer, eight bits make up a byte. Usually one byte is equivalent to a character. Each character in the ASCII set can be represented by only seven bits. Thus, a byte can be thought of as equivalent to a character for approximation purposes only.

Carrier: A steady signal that can be changed in tone (modulated) to transmit data.

Checksum: The last thing you do on your tax return. Also used as a test for the integrity of information transmitted by any means where corruption may take place.

Control Characters: ASCII characters that do not print out, but are used to control communications. Control characters can, for example, signal a sender to stop transmitting information when the receiver is busy.

Data: Information in code, text or numerical form, generally represented in ASCII code for digital communications.

Database: A file or program which contains information in a specially formatted way. Normally made up of records and fields which are roughly equivalent to a card file system.

Download: Transfer a file from another computer to your computer.

Duplex: Twin accommodation. Refers to the two-way nature of modem communications. In full-duplex communication, both terminals can send and receive simultaneously. In half-duplex operation, both ends can send and receive, but not at the same time. With full-duplex, echo-back communications, a transmitted character is not displayed until it has been verified by the receiver.

Electronic Mail: Messages directed to a specific user on a Bulletin Board system. A personal message, similar to mail.

Frequency: The number of cycles of an oscillating waveform that occur each second.

Glitch: Hiccup on the telephone line. Some information may be garbled making it unreadable.

Hayes: Command language for programming some modems.

LF: Line feed. Moves the cursor to the next line.

Modem: A device that modulates audio tones to carry digital signals and also demodulates the signals at the receiver so they can be understood by a computer.

NAK: Negative Acknowledge. Used in file uploading/downloading.

Noise: Random disturbances that degrade or disrupt data communications, present to some degree in all transmission links.

Originate/Answer Modem: A modem that can either start a telephone call or receive one automatically. Some modems automatically assume originate or answer status, others require manual switching to the proper state.

Parity: A means of checking for errors by adding an extra bit to each ASCII character transmitted.

Protocol: A set of rules for the transmission of data. Protocols describe when transmission will start and stop, what error checking system is in effect and the like. It is the format by which information is sent through the telephone system to minimise errors. Files are normally broken down into smaller parts sometimes called packets. A checksum is calculated and then compared with that calculated by the receiving system to ensure everything arrived intact.

RS-232: A standard for transmission of serial data covering both hardware configurations and transmission parameters. Different manufacturers may implement some or all of the RS-232 standard in their communications products.

SEALink: A downloading/uploading protocol.

Serial data: Data sent one bit at a time, as opposed to parallel data sent several bits at a time. Modems operate on serial data.

Sysop: System Operator. The person who is responsible for the smooth operation of a particular remote access system such as a Bulletin Board.

Teleconferencing: Several people get together to talk via electronic means, either telephone or computer, about a particular subject. Often used in multi-user remote access systems.

Terminal: A device that receives or transmits digital information. Communications software is designed to control computers during terminal mode operation.

Upload: Transfer a file to another computer.

X-ON/X-OFF: A protocol for pausing data transmission using simple control characters.

All about FidoNet

Networking its way across the continent comes a new sound in Electronic Mail. Now you'll hear the Bulletin Board systems dialing each other in the wee small hours, swapping secrets and exchanging gossip.

LIKE THE drums of an ancient tribe deep within Africa, echoing messages from one mountain post to the next, so too, FidoNet beeps an electronic tune from system to system.

There's nothing new about the idea. In fact, the concept was discussed locally at great length many times in years gone by. Little did we know what was in store.

At last a plan was forged and today is in full swing. To pass a message from one side of Australia to the other, electronically, by a series of repeater stations. Each with the ability to post new information, as well as allowing users to access existing material.

Early days

It all started in the US about five years ago. The original setup was simple, but it worked. A Bulletin Board written by Tom Jennings was required, and the name FIDO conceived by the same man. At first, one huge network existed, all busily swapping messages at night. Eventually the number involved became unmanageable, and other smaller NETS were arranged, supported by an update in the system software.

Fido BBS software made its way to Europe and Australia via public domain software collections. Soon networks were operating in both these areas, with the European Network being linked back to the US.

Downunder, things were happening. A small group in Melbourne, and another unrelated group in Sydney which eventually did link into the US based net. Melbourne and Sydney linked in the second half of 1986, and today some 75 different systems are operating spanning every state, and the ACT.

Getting caught in the net

To access these systems, you don't need anything out of the ordinary. In fact, possibly BBS's that you already frequent have a FidoNet area. An ANSI or VT100 emulator will provide a display as intended by the makers, in colour and with formatting. However, this is not an essential element. Any good terminal program, a 300 baud modem and your favourite computer.

At the end of this publication you'll find a list of FidoNet systems in your area. Most support the higher baud rates as well as the usual slowcoach speeds. If you plan to download programs or articles, or maybe even upload (bit of give instead of take) the odd piece, you can use XModem. Ymodem, SEAlink, or SuperKermit or even Zmodem are also supported and work better. (See the glossary.)

Once you're in

Take care. You're now on a public broadcast system. Your ideas will be spread far and wide, in a mere matter of days.

There is a large amount to read, on many different topics. FidoNet allows for many topic areas or special interest groups (SIGS), and these may be perused individually. Not all are offered on every system, but generally you'll find a good number to choose from.

This is only one of the two possible message types which traverse the FidoNet. Both types move in the same way, but each is used and accessed differently.

Netmail is for person to person communications. *Dear Jane, please don't bother to Netmail me again, I'm not your sort of guy.* That sort of thing. If it's private, or important, and you want to know the receiver got it for sure, that's the way to send your message. It's just like the normal public mail system, only probably more reliable.

To use it you must first know a bit about FidoNet's address system. Australia Post are very fussy about post codes. FidoNet also has a string of numbers which take on a special meaning, and help mail arrive at the intended address.

Layer upon layer upon...

Like any good adventure game, FidoNet has many levels or layers. At the lowest level is the node, which is in essence a single BBS supporting the FidoNet. Several nodes, usually about ten, form a net. Nets join together to form a

region, which is simply for administrative purposes, rather than mail handling.

Regions join together to make a zone. It's all a bit like the postal system. Each post office (a node), receives incoming mail and places it into the relevant post boxes (users accessing an individual system). It is part of a small area, or postcode grouping for mail sorting purposes (region). This in turn is part of a state mail network (zone), which fits into the entire national mail network (FidoNet).

To send mail to a specific system, you must know its unique address, which describes where it fits into the whole scheme of things. A FidoNet address might look like this:

3:711/403

The first number, in this case three, tells us in which zone the system is located. Zone three covers Australia, including the entire Western Pacific area.

The next three digits are the net. 711 is 'Sydney North' net.

Node 403, the next three digits, is the 'Software Tools' BBS.

To send a message to a specific person, you'll need to know which node they access. You can then send the message there, addressed to the appropriate user, and next time they access the system, they will be notified that mail is waiting.

To find out who is on what systems, you need to read the other type of mail called Echomail. At this time, there is no quick way of finding out who visits which BBS's. So this is the best way to meet those that frequent the topic boards of your interest.

Echo mail..mail..mail..

At first there was only Netmail. Then in Dallas, sysops (system operators not sys as in nice, but sys as in kiss) discussed the idea of sharing their own message areas via Fido. Jeff Rush took the idea to the Echomail stage, allowing messages on particular topics to be shared amongst many FidoNet systems.

Those BBS's with message areas about the same topic would swap messages. For example, if you accessed a system that had an area especially for Amiga users, a similar system on the other side of the country may have a similar message area. Messages that you leave would, in a matter of days, reach all systems that maintained a similar area.

The concept works brilliantly for fault finding and fact hunting. A question placed on one BBS soon spreads Australia wide, and before too long an answer should filter back through the system.

There's no need to worry about the address you want the message to end up at. Just post it at your local BBS, and before long the news will be hitting the fan all over the country.

In total there are some 100 different Echomail conferences running around the world. A few go to nearly every system, many go to a good number, and a fair few are limited to just local regions or zones.

The whole echoing process is automatic. There's no need to check dozens of systems for an answer. However, at the same time, take care, because echomail is not private, and falls into the category of electronic publishing.

Starting your own FidoNet BBS

You'll need software, and a fast modem. Try the Trailblazer. You'll also need a IBM PC, since that is what the most popular system software called OPUS runs on. For the best up to date information I suggest you contact your nearest FidoNet node operator and 'avachat to him or her.

Conclusions

Echomail boards are the way of the future for BBS operators. Stay out, and before long you're in the dark, in your own little world. See a full listing of Fido Systems in the BBS listing. ■

MINI OFFICE II

Never before has there been a program for the Commodore 64 that allows you to do so much for so little.

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DATABASE

A simple to use data filing system, the Database module can be set up in minutes even by novices, yet is fast, friendly and powerful. A special feature is that it can create a separate database from the results of a search.

GRAPHICS

Now you can easily create Pie charts, or Bar charts or Line charts from your information. Data can be either inserted directly from the keyboard, or you can import data from your spreadsheet and display the graphs accordingly.

SPREADSHEET

This module provides fast, efficient number crunching. It has all the commands and mathematical function of spreadsheets costing hundreds of dollars more.

Available only from your Pactronics retailers including Grace Bros, Myer, Maxwells Office Equipment, Microcomputer Spot, and Chandlers

FOR THE NEAREST RETAILER IN YOUR STATE CONTACT:

N.S.W. : Pactronics Pty Ltd, 33-35 Alleyne Street, Chatswood. (02) 407 0261

VICTORIA : Pactronics Pty Ltd, 51-55 Johnston Street, Fitzroy. (03) 417 1022

QUEENSLAND : Pactronics Pty Ltd, 12 Stratton St, Newstead, 4006. (07) 854 1982

SOUTH AUSTRALIA: Baringa Pty Ltd, (08) 271 1066 ext. 6132

WESTERN AUSTRALIA: Pactronics W.A. 1/757 Canning Highway, Ardross. (09) 364 8711

NEW ZEALAND: Micro Dealer, 60 Terakau Drive, Palupanga, Auckland. (09) 274 9300



Pactronics

Getting into Education Software

by Dan Gutman

Older Kids Love Computers Too

Educational computer software is more than just fuzzy bunnies, counting rabbits and talking turtles.

There's a common misconception that computer "courseware" is just for tots and pre-schoolers. While it's true that titles such as *Stickybear Spellgrabber*, *Teddy Bear-rels of Fun* and *Snoopy's Reading Machine* abound, the biggest opportunity for computer education belongs to kids PAST the nursery rhyme stage.

Older children can not only learn reading, writing, and arithmetic with the help of their personal computers, but also history, physics, algebra, and foreign languages. In fact, some experts believe that older children benefit MORE from using computers than their younger brothers and sisters.

"I think it's a crime to put a screen in front of kids when they should be mucking around in clay and sand and mud," says Holly Brady, the editor of *Classroom Computer Learning* magazine. "Those children are in a stage where they don't need the kind of abstractions the computer is good at."

Brady believes that kids at a higher cognitive level can use computers in

more enriching ways. For example, if you're trying to teach a junior high school student about the rotation of the planets, you can't go outside and study it. But you can simulate it on the screen.

"The computer is perfect to make that abstract concept concrete," Brady explains. "But these little guys, they don't need making abstract concepts concrete. They haven't got the concrete concepts down yet."

Subjects for older children that teachers and parents might want to consider are Geography, Mathematics, Biology, Chemistry and Physics.

There are also programs that help young adults learn the facts about smoking, be smart shoppers, write poetry, learn about nutrition, astronomy, weather, and many other subjects.

If you can't find these packages in your local computer store, you can get more information from Mindscape (Imaging 02-697 8666) and Scholastic (Computermart 09-328 9799).

Computer Education: A few tips

Only a decade ago, "back-to-school supplies" still meant spiral notebooks, number two pencils, and canvas book-

bags. Nowadays, it means floppy disks, optical mice, and antistatic mats.

With personal computers filling our schools and homes, parents have to concern themselves with a new and unusual world. There's a lot of computer junk out there and software is expensive, so you want to be careful when it comes to bringing high-technology to your children.

Here are a few suggestions

- **Get involved.** The computer isn't an electronic baby sitter. You can't just sit a kid down at the keyboard and walk away for a few hours. Work at the computer with your kids and discover what you can learn together.

- **Find out** how the computer is being used in your child's school. How often are computers used? Does the computer time relate to other school-work? Does the teacher know how the machines work? A visit to school isn't a bad idea. Some schools have lots of computers, but no idea what to do with them.

- **Match up the software.** If your child is learning how to write with *Bank Street Writer* in school, it will make it a lot easier if you get the same program for use at home. Word processors work differently, and it gets confusing when a child (or adult) has to learn how to use two of them.

- **Let your child teach you.** If you have a computer at home, have your child demonstrate what the class is doing in school. Kids love to show off.

- **Think up projects.** If your child is learning how to use filing programs, ask him or her to make a list of friends' phone numbers, grocery items, and so on. Use a spreadsheet to work out the family vacation budget. Make learning into a game.

- **Get a typing program.** Computers use typewriter keyboards, and your child will appreciate the computer more and enjoy it better if he or she knows



Chem Lab from OziSoft, disk \$49.95

TWO INTELLIGENT WAYS TO MIND YOUR OWN BUSINESS



1. *The Commodore Amiga 2000*

- Low-cost entry to desk-top publishing. Advanced graphics, type and photographic reproduction.
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- Optional XT or AT bridgeboard for MS-DOS compatibility.
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2. *The New Commodore PC10 Version 111*

- Just released! The newest version of Commodore's proven PC10 with 640K RAM.
- IBM PC compatibility. Runs MS-DOS business software.
- Expandable with 3 full-length expansion slots.
- Built in mouse port, serial and parallel ports and colour/monochrome adaptor.
- Includes Able One integrated software and GW Basic.



KEEP UP WITH
 **commodore**

how to type. There are dozens of these programs on the market, and you can increase your own typing speed with them as well.

● **Get fun software.** Nobody wants to come home from a hard day at school and have to learn boring stuff. Get an art program, a music program, a program that prints signs and banners. Computer games often require creativity and insight, and actually can be educational.

● **Don't buy blind.** Don't pick a program based on what some guy in a store wants to sell you. Read reviews in the computer magazines to find out what's been rated highly by educational experts. If possible, look at the software on-screen before you buy it. Talk to teachers.

Software made by established companies such as Broderbund, Spinnaker, Mindscape (Imagineering), Springboard (Computermart - Amiga, Dataflow - C64), Davidson, Sunburst, and MECC are generally educationally sound.

● **Buy the right level of software.** Packages are usually labeled according to age level, but don't be trapped by that limitation. If your child is ahead or behind the class, choose programs he or she can master. And look for programs with multiple skill levels so your child can still use them as he or she becomes more advanced.

● **Questions to ask yourself?** Does the program run on my computer? Is it user-friendly? Is it interactive? Is it childproof -- does the whole thing crash if I hit the wrong key? Does it make sense when I run it myself? Does it encourage exploration and thought? Can I return it if I don't like it?

● **Don't push.** If you force your kids to master the computer, they'll probably rebel by avoiding it. Kids are naturally fascinated by images and sounds coming from television screens. If you relax and let them discover it on their own, they'll show more interest and feel like they've accomplished something. ■

Some C64 educational software distributed by Pactronics

(for other programs, see the Software Guide in this Annual)

School Software

Magic Maths	(Age 3-7)	
Geography	(Age 12-16)	
Maths Mania	(Age 8-12)	
Biology	(Age 12-16)	
Better Spelling	(Age 9-Adult)	
Physics	(Age 12-16)	
Better Maths	(Age 12-16)	
Chemistry	(Age 12-16)	
	disk	\$18.95
	tape	\$14.95

Sesame Street

Superb range of educational programs. Covers problem solving, predicting, logic and reasoning.

Ernie's Big Splash	(Age 4-6)	
Grover's Animal Adventures	(Age 4-6)	
Ernie's Magic Shapes	(Age 4-6)	
Astro Grover	(Age 3-6)	
Big Birds Delivery	(Age 4-6)	
Pals Around Town	(Age 4-6)	
	disk	\$49.95
LCL Micro Maths disk	disk	\$49.95
	tape	\$39.95
Advanced maths	(Year 9-11)	

Arrakis Advantage Software

Algebra 1 / Volume 1 -		
Sets & Notations	disk	\$49.95
Sets, set notation, set types, operations etc		
Algebra 1 / Volume 2 -		
Number Systems	disk	\$49.95
Number uses, subsets, operations on integers		
Algebra 2 / Volume 1 -		
Equations and Formulae	disk	\$49.95
Terms and expressions, equations, inequalities		
ALGEBRA 2 / VOLUME 2 -		
Linear Equations	disk	\$49.95

Linear equations, systems of equations, functions etc

Algebra 3 / Volume 1 -		
Polynomials	disk	\$49.95
Operations on polynomials, rational functions, roots etc		
Biology 1 - Respiration	disk	\$49.95
Mechanics of breathing, oxygen transport etc		
Biology 2 - Digestion and Nutrition		
Nutrients, digestive system, health, nutrition etc.	disk	\$49.95
Biology 3 -	disk	\$49.95
Reproduction and Development		
Male & female reproductive systems, etc		
Biology 4 -	disk	\$49.95
Circulation and the heart. Blood, veins, arteries, lymph glands etc.		
Chemistry 1 - the Atom	disk	\$49.95
Dalton's, Thomson's, Rutherford's & Bohr's models, tables etc		
Chemistry 2 - the periodic table		
Periods, periodic law, periodic properties etc	disk	\$49.95
Geometry 1 - Basic geometry		
Perimeter, area, volume, point, line, plane etc	disk	\$49.95
Geometry 2 - Plane and space geometry	disk	\$49.95

Circles, polygons, triangles, quadrilaterals etc		
Physics 1 - Motion	disk	\$49.95
Speed and velocity, acceleration, mass etc		
Physics 2 - Light	disk	49.95
Waves, particle theory, speed, wave theory		
Statistics 1 - introduction to descriptive statistics	disk	\$49.95
Sampling, inferential statistics, probability etc		
Trigonometry 1 - introduction to trigonometry	disk	\$49.95
Trigonometric functions, right angles,		

Getting into Machine Code

by Andrew Baines

Many users would be unaware of what machine code is. It is the language the electronics of the computer understands.

On the Commodore 64, the 'machine' is the 6510 processor. It only understands numbers like 10011011, which don't make much sense to you or me. So we use what is called assembly language.

This is almost like BASIC, in that there are a set number of words that are typed in to form a program, but these words must be assembled into machine code before they can be run as a program.

The keywords, or the commands of machine language overlap in some areas with BASIC commands, but mostly, machine code is totally different in command, structure and readability. There are about 50 commands in machine language, to BASIC's 71, but the nature and complexity of the commands is what makes them different.

A machine language program must be structured. BASIC programs tend to end up all over the place with little direction, resulting in slower code. For every BASIC command, many machine language commands must be executed.

The advantage in writing machine language programs is that once you are reasonably fluent, your programs use more and more system routines which cut their length down and provide the best speed possible, as Commodore's ROMs have very tight and precise code in them.

The reason BASIC programs are so slow is that even though the BASIC ROM is written in machine code, each instruction must be looked up on a table. Then all the expressions for it must be evaluated, and finally the instruction can be executed. This all takes only milliseconds, but when these are added together in a major program, the milliseconds quickly turn to minutes.

Another good reason is that BASIC is an interpreted language. Even if you have to go through a loop 10,000 times, BASIC will interpret what it has to do 10,000 times, look up each command and evaluate the expressions for it 10,000 times.

This stacks up against machine code which needs no compiling. Once it is assembled it will run without interpreting every time. The chip is specifically set up electronically to interpret commands and takes only two cycles of the system clock to execute a simple command like TAY - Transfer (or copy) the Accumulator to the Y register, also the system clock clicks over about every fiftieth of a second.

Speed

What are the advantages of machine code? Speed is the biggest advantage. The Commodore 64 can chew through about 20 instructions per second (I'm probably wrong, 50 cycles per second, the average instruction taking 2 to 3 cycles to complete). The easiest way to demonstrate the speed of machine code is to clear some memory.

Here's the BASIC program:

```
10 x=24576
20 for i = x to x+256
30 poke i, 0
40 next
```

The machine code program looks like this:

```
* = 49152
ldy #0
tya
loop sta 24576,y
iny
bne loop
rts
```

Most readers probably don't have an assembler to convert this into a file that will run, so here's a BASIC loader that's already assembled:

```
5 REM BASIC Loader for above machine
code program
10 i = 49152
20 read a: if a = 256 then 40
30 poke i,a: i=i+1: goto 20
40 input "Press Return to Run":a$: sys
49152
100 data 160, 0, 152, 153, 0, 96, 200,
208, 250, 96, 256
```

Run the BASIC program first (the first

one given) and notice the time it takes. Now run the BASIC loader, and notice the time from when you press return in response to the prompt and the time the ready message appears. A big difference.

The reason is that BASIC has to interpret the first program so that the 6510 can understand it. BASIC is converting the program into machine code! But the time taken for this program to run is much greater because the 6510 must execute many more instructions to interpret the program. And every time BASIC goes through the loop - 256 times - it interprets what's inside the loop, and the NEXT statement. In both cases, BASIC performs an evaluate expression following the instruction (what are the parameters of the instruction).

For the POKE, BASIC looks up the value that i holds, finds out what the value of the 0 is, checks that both of them are legal values, and POKES the value into the memory location. Then it encounters the NEXT, and decides that the highest priority FOR - NEXT loop is the one that uses i, so it increments i, checks to see if we're finished, and POKES again.

This is just a small demonstration. Think of all the other wonders that machine code can accomplish, raster interrupts, fast moving interrupt-controlled sprites, your own interrupt routines, fast SORT routines for your list-managers, the list goes on. But the good thing about machine code is that you never notice it's there, because it's so quick.

Compilers

There is another way around BASIC's speed: a compiler. BLITZ, available from Prime Artifex on (02) 817 0011, will compile your BASIC program so that the interpretation is not needed. The only disadvantage is that BLITZed programs tend to take up enormous amounts of memory for even the simplest program. LOAD-time suffers but RUN-time is up to 25 times quicker.

By now, you may be thinking, great, I should learn machine code, it's a really speedy language, and isn't that what we're all after, productivity?

There are, however, fundamental differences between the way the machine language program above works and the BASIC program. The 6510, as is the case with all processors, uses registers, Accumulator, X and Y registers. A little different to BASIC, which allows any number of variables and constants, limited only by memory.

Memory is the big player in machine language. Programmers use it as their variables. After all, who could write a spreadsheet using three variables, and only one capable of maths? There is also the stack to consider (Amiga readers would be familiar with their system's stack, the little pain it is). This holds, in the C64's case, the return addresses for machine language GOSUBs and any variables the programmer cares to put on it.

The BASIC program above creates a loop and clears 256 bytes of memory inside the loop. A machine language program sets up the Y register as an index to the memory we want to clear, sets the Accumulator to zero by copying the zero in the Y register to it, and then it goes into the loop.

First the Accumulator, which holds zero, is stored in the first byte of memory we want to clear. Then the Y register is incremented. One is added. Since Y is now nonzero, the BEQ, or Branch if Not Equal to zero, is true, and the program moves back to the beginning of the loop. Then the computer stores zero in the next byte, as Y is one greater, until Y hits zero again (all registers on the 6510 are 1 byte long, so if they hold 255 and they are incremented, they now hold zero).

Another thing that you must be prepared to learn is Hexadecimal: the base sixteen number system. Since we've only got ten digits (0 through 9), we use the letters A through F. So the numbers go like this:

Decimal	Hexadecimal
0	0
1	1
2	2
.....	
9	9
10	A
11	B
12	C
13	D
14	E
15	F
16	10

This looks okay, but wait until you get into the higher numbers. A good calculator like the CASIO FX-100B with Hexadecimal built in wouldn't go astray for converting from Decimal to Hex and back.

Assemblers

The first thing you need to program in machine code is an assembler. An assembler converts mnemonics or assembly language into the numbers that the computer understands. The most common assembler is the basic line assembler. These don't really help if you're writing a big program, what you need is an assembler that will assemble a text file, so that you can edit the text file if the program doesn't work, and assemble it again.

Unfortunately, these are in extremely short supply in Australia. MicroComputer Spot (02) 419 2333 has *Assembler 64* for around \$30. Commodore's answer to the assembler problem but it is a bit difficult to use. It seems to be the only reasonable file assembler on the market. Pactronics (02) 407 0261 also have the Final Cartridge III, and Action Replay, which both have line assemblers.

A line assembler assembles one line of code (one instruction) at a time straight into memory. They are good for small programs and minor editing, but when you're writing lots of code they can be very difficult to work with.

Take, for example, one error in 1000 bytes of code. You forgot to put in that JMP command. Using a line assembler means you have to either copy memory from the point where the JMP should go up a few bytes and then relink all of it, or type the whole lot in again. With a file assembler, you type the whole program into a text editor or word processor, and then run the assembler.

The advantage is that to edit your program, you go back to the editor and fix the bug, then reassemble the whole thing easily. Commodore's assembler is a bit painful in that you have to load the editor, save your file, load the assembler, assemble it, save it, and then if it needs debugging, reload the editor. Sound like a lot of work?

If you own a C128, Assembler 128 is

also available. Maybe both can be loaded into memory at once, if not, a good text editor should be available in the Public Domain.

Line assemblers should be available from your local user group: there are plenty in the public domain.

Now that you have an assembler available (a good line assembler will do to start with), you need a good book on the subject. There are many available, but I will go through the ones that have helped me.

The Commodore 64 Programmers Reference Guide

This book is invaluable for any programmer, whatever language you use. It covers BASIC programming from beginning to end, explains every instruction competently and then goes on to describe the hardware of the C64.

The chapters on BASIC cover screen codes, Ascii codes, numbers and variables, expressions and operations, and programming techniques. Then the next chapter goes on to describe BASIC keywords in detail, providing examples, the keyboard and the screen editor. Even if you don't intend to learn to program in machine code, this book teaches the fundamentals of programming.

Unfortunately, the book is a little programmer-oriented (I have always been told that real programmers never read the manual - this is the one they keep hidden under the table), but if you persevere, it is worth while (you become a programmer).

Graphics are covered from a programmer's point of view. This has its advantages and disadvantages, as always. The advantages are that if you are using it as a reference guide: looking up that vital memory location that has just slipped your memory, this book is great. But if you don't understand the graphics on the 64, with this book, the chances are that you never will, or that you will own another computer before you do.

But another clear advantage of the Commodore 64 (and therefore this book) is that BASIC has no graphics routines,

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so these chapters apply to BASIC and machine code. Everything is looked at. Sprites, low resolution graphics in normal and multi-colour modes, high resolution graphics in normal and multi-colour, and the other various odds and ends that VIC (the graphics chip) has inside it.

Sound and music is another chapter, and a very technical one at that. You really have to be a musician and physics wizz to understand this chapter. It talks about volume control, frequency of sound waves, using multiple voices, changing waveforms, the envelope generator, filtering, synchronization and ring modulation.

If you understand anything after volume controls, this book is perfect for you. Being fair, the chapter does have a good set of example routines that show exactly what it's on about, and the POKES are readily convertible to machine language.

Machine language is the next chapter. Everything from the 6510 instruction set to a memory map to the KERNAL and what it does on power-up. This book provides the programmer with information, but unfortunately it has to be interpreted.

The Reference Guide provides a scant tutorial from a programmer's point of view, covering hexadecimal, addressing modes, indexing, subroutines, the instructions available, memory management, the KERNAL and what it likes to do when you RESET or POWER-UP, using ML from BASIC. Finally, a memory map, not unlike the one published in the 1988 Annual.

The last chapters provide electrical specifications. What to do to make the 64 talk to the outside world, and various other odds and ends. *Commodore 64 Programmers Reference Guide* comes in a spiral bound format, good for lying flat on the desk. Recommended for programmers - no matter what language they use. Available from Commodore dealers for around \$50.

Toolkit BASIC

This book is one of the best I've ever seen. It's all about how to use BASIC's routines in your Machine Language programs. After all, why not make use of the routines that are in the machine instead

of writing reams of code that does the same thing?

It starts off with part one showing how to make your own customized version of BASIC, four different ways, providing interrupt-driven commands, commands that are a literal extension to BASIC, commands that use CHRGET, and a routine that allows up to 255 new commands, the only restriction being memory. SYS and USR are both covered well. Toolkit BASIC even goes through the bugs in BASIC. Floating point routines are discussed in depth, and finally mixing machine code and BASIC.

Part two details BASIC's routines, how it goes about its work. Each instruction is described in detail, where it fits in, what routines it calls, and how it returns its output. The chapters cover initialization, the entry phase, CHRGET/CHRGOT, tokenization and program storage, memory allocation and moves, pointer resets, expression evaluations, variables and arrays, floating point operations, strings, statement execution, and all the individual commands and functions.

Toolkit BASIC is spiral bound, so it sits flat on the table. This is one of the most used books I own. It's not written for programmers, it's written for people. Highly recommended. I haven't seen it around for a while, it's from Compute! Books, so a call to the U.S. might be the go. Their address is: Compute! Books, PO Box 5038, FDR Station, New York, NY 10150. Telephone 212 887 8525.

Programming the 6502

This book is written by Rodney Zaks for anyone who has a book of his. It is very technical, and goes through programming techniques and other little known parts of the 6502/6510 with success. As this is a book written by a programmer, it is very hard in places, but is the sort of book that is essential as a reference manual.

Many books start out teaching the basics of programming in the particular language. This book teaches about programming principles, and then heads for the 6502. It goes through flowcharting, hardware of the 6502, programming techniques, the instruction set, addressing techniques, input/output techniques and



Too hard . . . gone fishing!

devices, applications, data structures, and program development.

Even if you don't want to learn 6502 machine language (each chip has its own language), this book is a worthwhile purchase for its technique description. If you are prepared to be bored for a while, this book is very good, and provides examples all along the way.

Try your local Apple Dealer (sorry, but that's where I picked mine up - the Apple II series uses 6502's - note that the Apple IIe uses the exact same processor as the 1541 disk drive - the 6504), for around the \$35 mark. Once again, highly recommended, but only for those with patience and the willingness to learn.

Machine Code is very difficult to understand at first, but once it clicks, the sky's the limit - anything can be done. The best way is to read as many magazine articles, books and particularly tutorials on the subject - then understanding the principles is easier. If you would like to learn machine language, I recommend all the books reviewed above. They all helped me understand a new and exciting way of programming a very good machine, the Commodore 64. Maybe even an enquiry at Commodore about their training programs, or at your local dealer would open up some avenues for you.

If you would like to learn machine code, I recommend learning the principles using a Commodore 64. The transition from BASIC to machine language is much less traumatic on this machine, as graphics and sound are totally transportable between languages (they're just POKES), and all of the system routines are available to make life easier. It may take time, but in the end it will be worthwhile. ■

Welcome to the wonderful world of adventuring

by Michael Spiteri

“Good morning!” said Bilbo, and he meant it. The sun was shining, and the grass was very green. But Gandalf looked at him from under long bushy eyebrows that stuck out further than the brim of his shady hat.

“What do you mean?” he said. “Do you wish me a good morning, or mean that it is a good morning whether I want it or not; or that you feel good this morning; or that it is a good morning to be on?”

“All of them at once,” said Bilbo. “And a very fine morning for a pipe of tobacco out of doors, into the bargain. If you have a pipe about you, sit down and have a fill of mine! There’s no hurry, we have all the day before us!”

Then Bilbo sat down on a seat by his door, crossed his legs, and blew out a beautiful grey ring of smoke that sailed up into the air without breaking and floated away over The Hill.

“Very pretty!” said Gandalf. “But I have no time to blow smoke-rings this morning. I am looking for someone to share in an adventure that I am arranging, and it’s very difficult to find anyone.”

“I should think so - in these parts! We are plain quiet folk and I have no use for adventures. Nasty disturbing uncomfortable things! Make you late for dinner! I can’t think what anybody sees in them,” said our Mr. Baggins. ♡

(Excerpt taken from THE HOBBIT, by J.R.R Tolkien, 1937)

Maybe if Bilbo had been born a few million years later, and owned a Commodore 64, the idea of travelling afar to slay an evil dragon and claim a cavern full of gold and jewels, he wouldn’t have been so reluctant about taking part in an adventure.

But in those days, a silicon chip was unheard of, let alone a computer! So nobody could really blame Bilbo for not wanting to risk his life killing dragons, and being late for dinner.

Imagine being able to take part in such an adventure, travelling the Earth and the secrets of the Universe to bring back treasures, rescue beautiful Princesses and slay evil monsters - all in the comfort of your own home.

Well, it is possible, and computer owners have been doing it for over 20 years. Your personal computer becomes your eyes, ears, feet, arms, etc. while you take control of the brain. Through the keyboard, you tell the computer where to go, what to do, who to talk to, what to say, what to touch, what to smell, who to kill, what to use, and so on.

And if for some reason, what you tell the computer doesn’t work out as you planned, and you sort of get your head sliced off by some unsuspecting troll, then you can start again - unharmed. Or even better, you can put the clock back two or three moves and try to solve the problem again - hopefully successfully this time.

However, if it all becomes too much for you, and you need a break, or if Mum’s calling you for dinner, then you can simply store your current position in the adventure on cassette or disk, and continue where you left off another time - after dinner perhaps.

You can now choose what adventure you wish to partake in, and believe me, there are hundreds upon hundreds of adventures currently available for you to become a part of.

You can become Bilbo and join Gandalf in the quest for gold. You can be-

come Perry Mason or Sherlock Holmes and attempt to solve the world’s most ingenious mysteries. Travel the universe as Luke Skywalker, saving and destroying planets and spaceships. As Trent or Tiffany challenge the sexy gods and goddesses of Phobos, or join Monty Python in search for the Holy Grail, or even better, search for the secret to Life, the Universe, and Everything. The list just goes on, and on, and on.

What do you need to have an adventure game? Well, the first thing you need is a computer. Then you must purchase either a tape drive or a disk drive. Adventure games on disks are usually larger, more advanced and detailed than those that come on tape, because the adventure will keep referring to the disk drive for more information. Oh yes, you’ll also need a monitor or television.

What types of adventure games are there? There are many types of different adventure games on the market. The oldest and most original style of adventure is the text-adventure. Everything that occurs in your adventure will be described in detailed text descriptions, allowing you to form in your mind a vivid picture of what is happening.

The next category is the graphic/text adventure. Here the computer will draw a picture of the present area, and then accompany the picture with a text description. This type of adventure is very much the common trend in adventures at the moment. Then there is the animated graphic/text adventure, which is the same as the graphic/text adventure but has some animated graphic cartoon sequences as well.



Then there is the full graphic/role-playing adventure which has no text descriptions, and you move around the place either using the joystick or single letter commands, whereas in the graphic/text type of adventure, you tell the computer what to do using two or more words - giving you greater control over your character.

Finally, there are the Wargames. These aren't really true adventures, however they give the player the chance to reenact famous air, sea or land battles.

What games come under these categories? Below is a list of some adventure games in each category available for Commodore home computers.

Text - adventure games:

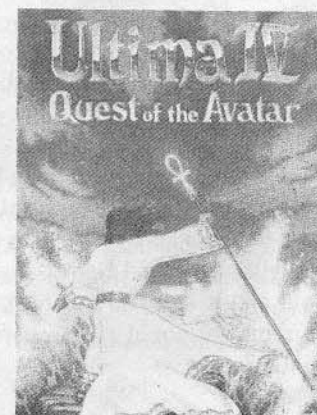
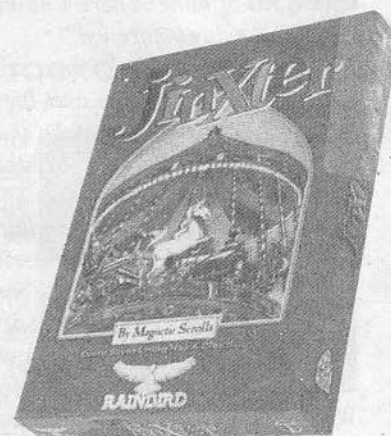
Zork 1,2,3	Disk	Dungeon	Infocom/Questor
Hitchhikers Guide to Galaxy	Disk	Sci-fi/Comedy	Infocom/Questor
Leather Goddesses of Phobos	Disk	Adult/Comedy	Infocom/Questor
Hollywood Hi-Jinx	Disk	Movie	Infocom/Questor
Beyond Zork	Disk	Dungeon	Infocom/Questor
Plundered Hearts	Disk	Romance	Infocom/Questor
Starcross	Disk	Sci-fi	Infocom/Questor
Suspended	Disk	Sci-fi	Infocom/Questor
Trinity	Disk	Nuclear war	Infocom/Questor
Planetfall - Stationfall	Disk	Sci-fi/Comedy	Infocom/Questor
Sherlock Holmes	Disk	Mystery	Infocom/Questor
Lurking Horror	Disk	Horror	Infocom/Questor
Deadline - Witness - Suspect	Disk	Mystery	Infocom/Questor
Wishbringer/Enchanter/Spellbreaker	Disk	Magic	Infocom/Questor
Classic Adventure	Tape	Dungeon	Melb.House/SLM
Mordons Quest	Tape	Dungeon	Melb.House/SLM

Text-Graphic adventure games:

The Pawn	Disk	Fantasy	Rainbird/Questor
Guild of Thieves	Disk	Crime	Rainbird/Questor
Jinxter	Disk	Magic	Rainbird/Questor
Corruption	Disk	Crime	Rainbird/Questor
The Hobbit	Tape/Disk	Fantasy	Melb.House/SLM
Lord of the Rings	Tape/Disk	Fantasy	Melb.House/SLM
Shadows of Mordor	Tape/Disk	Fantasy	Melb.House/SLM
Sherlock	Tape/Disk	Mystery	Melb.House/SLM
Nine Princes in Amber	Disk	Magic	Trillium
Fahrenheit 451	Disk	Sci-fi	Trillium
Amazon	Disk	Jungle	Trillium
Perry Mason	Disk	Mystery	Trillium
The Incredible Hulk	Tape/Disk	Fantasy	Adventure Int.
Spiderman	Tape/Disk	Fantasy	Adventure Int.
Fantastic Four	Tape/Disk	Fantasy	Adventure Int.
Adventure Land	Tape/Disk	Dungeon	Adventure Int.
The Institute	Disk	Fantasy	Ozisoft
Asylum	Tape/Disk	Fantasy	Ozisoft
Lucifers Realm	Disk	Fantasy	Ozisoft
MindShadow	Disk	Fantasy	Activ/Questor
Tracer Sanction	Disk	Sci-fi	Activ/Questor
ZZZZZZZ	Tape	Fantasy	Not known.
Snowball	Tape	Sci-fi	Level 9
Red Moon	Tape	Sci-fi	Level 9
Price of Majick	Tape	Magic	Level 9
Lords of Time	Tape	Fantasy	Level 9

Animated Graphic-Text Adventure Games

Mask of the Sun	Disk	Dungeon	Brod./Questor
Serpents Star	Disk	Fantasy	Brod./Questor



Dallas Quest	Disk
Kings Quest 1-3	Disk
Leisure Suit Larry	Disk
Space Quest	Disk
Police Quest	Disk
Buckaroo Banzai	Disk
Gruds in Space	Disk
Blade of Blackpoole	Disk
Transylvania	Disk

Jungle
Fantasy
Adult/Comedy
Sci-fi
Crime
Fantasy
Sci-fi
Fantasy
Horror

Ozisoft
Sierra/Ozisoft
Sierra/Ozisoft
Sierra/Ozisoft
Sierra/Ozisoft
Adventure Int.
Sirius Soft.
Sirius Soft.
Sirius Soft.



Graphic/Role-Playing Adventure Games

Ultima 1-4	Disk
Wizardry	Disk
Queston I-II	Disk
Gemstone Warrior	Disk
The Bards Tale 1-3	Disk
Phantasie I-II	Disk
Wizards Crown	Disk
Realms of Darkness	Disk

Questor
Questor
Strategic Sim.
Strategic Sim.
Not known.
Strategic Sim.
Strategic Sim.
Strategic Sim.



Wargames

Halls of Montezuma	Disk
Russia	Disk
Carriers at War	Disk
Europe Ablaze	Disk
Battlefront	Disk
Baltic 1985	Disk
Battle cruiser	Disk

SSG
SSG
SSG
SSG
SSG
Strategic Sim.
Strategic Sim.

Carrier Force
Theatre Europe
Battle of Britain
Falklands 82
Midway
Iwo Jima
Okinawa

Disk	Strategic Sim.
Tape/Disk	SLM
Tape/Disk	SLM
Tape/Disk	SLM
Tape/Disk	SLM
Tape/Disk	SLM
Tape/Disk	SLM

From the wonderful world of adventuring to the wonderful world of...

Adventurer's Realm

by Michael Spiteri

What is Adventurer's Realm?

Adventurer's Realm is a regular monthly article that appears in the *Australian Amiga and Commodore Review*, whose sole intention is to keep adventurers out of trouble and well informed. When playing an adventure you'll no doubt get stuck some place or other. Don't panic, help is at hand! Just send your problem to Adventurer's Realm. If I can't help you, then I'll publish your problem and somebody will always send in the help required.

If it's just general hints you are after

then hint-sheets are available for a number of popular adventure games - these are free of charge. People with modems can access one of the two Official Realm Bulletin Boards to obtain more hints and tips, and I'll always try to print a few random hint's, tips and maps every now and then in the Realm.

As well as hints and tips, Adventurer's Realm will keep you up to date with news and views and occasionally a few product reviews. The Realm also lets you have your say via a debate which usually runs over 4-5 months (where

you get the chance to debate adventure topics), and I'll print your other views regarding adventures in the chitchat section.

Wargamers are not forgotten either. Barry Bolitho will answer all your wargame queries (if he can), as well as hint/tips and reviews every now and then.

Hint Sheets

Kabyashi Naru, ZZZZZ, Adventureland, Pirate Adventure, Fairy Tale, Bard's Tale, Borrowed Time, Zork 1,2,3, Hitch

hikers Guide, NeverEnding Story, The Hobbit, Lord of the Rings and Castle of Terror.

Official Realm Bulletin Boards:

Terminal BBS (WA) (09) 389 8048
Down Under BBS (NSW) (02) 674 6647

Addresses to write to....

Adventurer's Realm
1/10 Rhoden Court
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VIC 3175

WarGame Dept
Role Playing Dept
44 Hawkesbury Drive
Willetton
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*Always enclose a stamped addressed envelope when writing to the Realm.

Realm's Pick of the Bunch 1988

Beyond Zork

By Infocom

Available from Ozi Soft \$TBA

The Zork series have been troubling adventurers for over a decade. Now many years since the release of Zork III, comes yet another addition to the series - *Beyond Zork*. So, if you were smart enough to solve all three Zorks, I can guarantee that *Beyond Zork* will make experienced Zorkers cringe with agony as they try to tackle some of the problems in this monster.

The game is littered with riddles and beasts and complex locations (these include the Fields of Frotzen, The Plane of Atrii, Froom, and Thriff). However, there are things in *Beyond Zork* that you won't find in any other Infocom classic.

Firstly, you can create your own character at the start of the game, taking things like endurance and strength into

account. The game also draws its own map, which scrolls along in the corner of the screen. The text descriptions are very vivid and the vocabulary is just immense in size. Basically, it's just like every other Infocom game - only better!!

Corruption

By Magnetic Scrolls/
Rainbird

Available from Questor \$49.95

From the people who brought you graphic wonders such as *The Pawn* and *Guild of Thieves* comes *Corruption*, a totally original game, with very detailed graphics, detailed text descriptions and excellent vocabulary.

The setting of the game is London, and you have just become a partner in a broking firm, however you soon discover things aren't as quite as they seem. It's up to you to deal with the great deal of corruption in the firm - and stay alive at the same time.

This fast-paced thriller comes complete with a cassette containing music that should get you into the right spirit of playing the game, as well as an introduction into the plot which is well acted and executed if sometimes a bit confusing.

Also enclosed is a detailed instruction manual that explains the basics of playing adventures, excerpts from a diary, many hints, and a guide to playing at the casino which the player no doubt does sometime in the game. *Corruption* is an exciting, yet different, game that should please all who attempt it.

Jinxter

By Magnetic Scrolls/Rainbird

Available from Questor \$59.95

A weird game is Jinxter - I have not seen anything quite like it before. It's got all the trademarks of a Magnetic Scrolls game - great graphics, good vocabulary

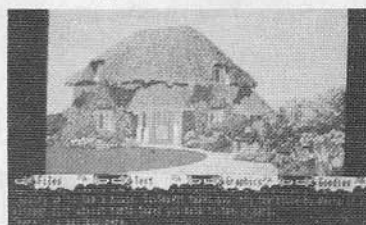


and detailed text descriptions.

The plot is very confusing, but it has to do with recovering a number of charms that form part of a bracelet that has great powers that are important to a certain league of Guardians.

The game starts with you being run over by a bus, and being introduced to this sandwich-eating guardian who explains things to you and sets you on your way. Apparently your character is a bit of a jinx because all sorts of nasty things happen to him, still it's all part of being a Jinxter, I suppose. Makes sense? Don't worry, I still haven't worked it out yet. The fact that all the text in the game is written in cockney English doesn't help much either.

Documentation is excellent and humorous to read. I suggest that you try the game out first before you buy it because I tend to feel that this game is aimed at a certain crowd. I could be wrong, but it is you who have to fork out the cash. Know what I mean? ■



All about User Groups



DESPITE RUMOURS to the contrary, Commodore Clubs aren't just a great place to go if you want to swap programs. That's illegal, and if that's what your club does, you could be heading for trouble.

If you're new to computers, user groups can be a lot of help. Most do a wonderful job of looking after people, providing the sort of hand-holding you won't get from your dealer, or Commodore. The bigger groups have a good range of Public Domain programs to choose from, and probably a monthly newsletter. Meetings are normally held a couple of times a month. You'll find the times and location mentioned in the following list wherever possible. We suggest you confirm details before going, as they often change.

Groups are listed under area headings, and also in order of

postcode number, to make it easier to find one near you.

At the end of each entry you'll find some groups have the name of their club magazine or newsletter mentioned, along with the name and phone number of any associated bulletin board. (Note: e/m = each month.)

These phone numbers, and other information, are not confirmed by us. They are provided by the actual user groups directly, and in most instances are correct. However, we cannot take any responsibility for listings that may be out of date. You can help! Let us know if an entry is wrong, or if there is something we should include, or remove. Updates are available during the year, and people often ring the magazine directly to check on user groups in their area. Call (02) 817-0011 for all

User Group List

New Zealand and Overseas

Australasian Amiga Users Association AAUA
(047) 514 143 Ray Wilson
Amiga Man (047)588 006

Christchurch Commodore Users' Group, Inc The C.C.U.G.
3 Paulus Terrace,
Christchurch 2
34 382 Tony Petre

New Zealand Amiga Users Group
22 Ellice Road, Auckland
Roger Manson

NZ Microcomputer Club
NZMICROC P.O. Box 6210
Auckland, New Zealand
64 9 452 639 Terry Bowden
1st Wednesday e/m 7.30pm
107 Hillsborough Road, Mt. Roskill
NZ Micro in Bits & Bytes Magazine

New South Wales

Sydcom
PO Box 1542, Sydney NSW 2001
(02) 521 8765 Barrie Martin
2nd Wednesday e/m,
7.30-10.00pm
Ryde Catering Coll, Blaxland Rd
Ryde - opposite Kulgoa Ave
Peripheral Magazine

Comp-Tel (Telecom User Group)
138 Barcom Ave

Rushcutters Bay NSW 2011
(02) 231 1111 O. Davide
Mostly by telephone or when
necessary by Pitt telephone
exchange.

Eastern Suburbs Commodore
User Group ESCUG
P.O. Box 236, Botany NSW 2019
Carol Shearman
Every 2nd Monday 8.00pm
State Emergency Services Hall,
rear 1355 Botany Street, Botany

Commodore Computer Users
Association CCUA
(047) 391 528 Tony Ellis
7.30pm last Wednesday e/m.
The 729 Club, Lithgow St
St Leonards 2065 (informal)
Comet 64 02 599 7342

Commodore Hornsby User Group
CHUG P.O. Box 1578
Hornsby, Northgate 2077
(02) 476 4391 Jill Rassack
7.15pm 4th Wednesday e/m
St Leos College, Woolcott Ave,
Waha
Peripheral/Line Feed

Burwood Amiga User Group
(02) 627 1596 (H)
Peter Anderson
2nd Monday e/m 7.30 pm
Burwood RSL 2134
Mario Cotra

Commodore Great Western Users
Group GRTWEST
2 Bridge Street
Granville NSW 2142
(02) 637 6282 Lisa Bullivant
1st Tuesday each month
Greystanes Community Centre
Merrylands Road, Merrylands
Byte

Commodore Great Western Users
(02) 636 2080 Sam Axiak
2nd & 4th Thursday e/m
Church Hall, Catholic Church.
198 Old Prospect Rd.,
Greystanes 2145

Greystanes Commodore User Gr.
60 Cooma Road, Greystanes 2145
C. Rennie

Macquarie Fields Commodore
User Group
P.O. Box 80 Glenfield 2167
(02) 605-3113 Campbell Dixon
2nd & 4th Wednesday each month
6.00-10.30pm - All Commodore
Models
Macquarie Fields Community Hall,
Fields Road, Macquarie Fields

Southern Districts Commodore
Users Group STHDIST
3 Lucille Crescent
Casula NSW 2170
(02) 602 8691 L. Toms
1st/3rd Wednesday e/m 6-8pm
API Hall, Kurrajong Road,
Prestons

Ace User Group
P.O. Box 938, Bankstown 2200

Compu-Tech Users Club
P.O. Box 43
Islington NSW 2236
Geoff Rayner, Secretary
Last Tuesday e/m, 7.00pm
Newcastle Technical College
Victim

East Coast Amiga Users Group
(043) 41 8140 Jeff Campbell
2nd Friday e/m 7pm Cnr. Alison &
Rankin Sts., Wyong, 2250
4th Friday each month 7 pm
Niagara Park Public School
Output

Tuggerah Lakes Commodore
Users Group T.L.C.U.G.
P.O. Box 2257
Gosford NSW 2250
(043) 282 805 Barry Atkinson
1st & 3rd Thursdays at 6.30pm
Old Wyong Primary School,
Alison Road, Wyong
R.A.M.

A.S.I.G.
P.O. Box 86 Umina NSW 2257
(043) 418140 Jeff Campbell
2nd Friday e/m 7.00pm
Old Wyong Primary School, Cnr.
Alison/Rankin Sts, Wyong

Gosford Commodore Computer
User Group G.O.S.C.O.M.
P.O. Box 86
Umina NSW 2257
(043) 232179 Dick Bridge
2nd Tuesday & 3rd Wednesday
e/m 7.30pm
Niagara Park Public School
Library

Narara Valley Dv., Niagara Park
OUTPUT

Bay Users Group
P.O. Box 308, Nelson Bay, 2315
(049) 811731
GOSUB

Cessnock C-64 User Group CCUG
37 Whittings Lane
Ovorrobolong 2325
(049)981-566 Ron Morgan
7pm-9pm. Every 3rd Tuesday
Mt. View High School
Mt View Rd, Cessnock

Tamworth C.Y.S.S.
P.O. Box 1104, Tamworth, 2340
(067) 665 136 Mr. Mark Nickols

The Hastings (Computer) Users
Group T.H.U.G.
8 Mitchell Circuit
Port Macquarie 2444
(062) 840464 Arthur Sawilejsrij
7.30pm 1st Monday of each month
Port Macquarie CYSS; 73 Lord St.
Newsletter - monthly

Wollongong C-64/C128 Users Gr.
155 Jacaranda Ave Figtree 2525
(042) 288580 P. Stanhope,

Goulbourn Commodore User Gr.
34 Chantry Street Goulbourn 2580
(048) 212 704
Geoff Bassingthwaight
2nd Tuesday each month 7.00pm
Southern Tablelands Educ Centre

Goulburn Amiga Owners Group
(048) 44 2251 Rob Wilkins
(Publicity)
1st Wednesday month
Southern Tablelands, 2580
Education Cent.

Albury-Wodonga Commodore
Users Group Inc.
P.O. Box 1014 Albury 2640
David Willis President
last Monday every month
Albury High School

The Hastings Users Group
C/- 8 Mitchell Circuit
Port Macquarie 2644
(065) 849994 Jim Hodges
7.00pm 1st Monday each month
C.Y.S.S., Lord Street

Australian Amiga User Association
Inc. AAUA
P.O. Box 389 Penrith 2750

(047) 39 6184
every 2nd Wednesday at 7.30pm
Connells Point Public School Hall
Riverview Rd., Connells Point
AmigaMan BBS
(Sysop Ron Carruthers)
(047) 588 006

Penrith Commodore Users Group
PCUG
21 Harris Street Penrith 2750
(047) 32 1315 Terry Barrett
1st Sunday Suite 17 Lethbridge
Court at 1.00pm
3rd Wed. The Victoria
St. Community Cottage Victoria St.
Werrington 7.30
Commodore Capers - monthly

RAAF Richmond Commodore User
Group RRCUG
C/- OIC 486FTF
RAAF Richmond 2755
I. Mercier
every two weeks On the Base!

RAAF Richmond Computer Club
RRCC c/- Mail Centre
RAAF Richmond 2755
Every 2nd monday.
Commodore, IBM, Apple, Tandy
Random Access

Katoomba Commodore User Gr.
3 Mihn-Ha-Ha Road,
Katoomba 2780. D. Marti
Every 2nd Tuesday 7.30pm
Katoomba High School

Bathurst Computer User Group
P.O. Box 1104, Bathurst 2795
(063) 31 5344 Garry Douglas
2nd & 4th Friday of each month
Bathurst West Public School
7.30 pm

ACT

ACT VIC-20 Users Association
25 Kerferd Street,
Watson ACT 2602
(062) 412316 aft 6pm

Commodore User Group A.C.T.
CUGACT P.O. Box 599,
Belconnen ACT 2616
(062) 48 9527(H) John Hambley,
7.30pm 1st Monday/3rd Monday
Melba High School/Woden Library

Victoria

RAAF Laverton Commodore User
Group
R.A.A.F. Base, Laverton

Melbourne Vic 3027
(03) 3682457
Neville Hewlett, Secretary

Commodore Amiga Users Group
P.O. Box 64, Abbotsford 3067
Frank Martin
2nd Thursday of month 7.30pm
Scout Hall Koonung Road
North Blackburn

The Commodore User's Group
(Victoria) Inc
PO Box 64, Abbotsford, Vic 3067

Victorian Amiga Users Group
P.O. Box 109, Nth Balwyn 3104
(03)792 9666 Neil Murrey
Workbench

Melbourne Commodore Computer
Club Inc.
P.O. Box 177, Box Hill 3128
7.30pm 3rd Wednesday e/m
Nunawading Civic Centre (next to
Library)

Waverley Commodore User Group
C/- 329 Springfield Road
Nunawading Vic 3131
(03) 569 8481 H. Younger
4th Thursday 7.30pm
Alvie Hall, Alvie Road,
Mt. Waverley

Yarra Valley Commodore U. Gr
P.O. Box 176, Lilydale, Vic 3140
(03) 735 0638 Barry Vickers
1st Tuesday e/m 8.00pm
Melba Hall, Cnr. Market & Castella
Streets, Lilydale

Amiga Users Group
P.O. Box 48, Boronia 3155
2nd Sunday of month
Burwood State College, Buil
Workbench \$20 Membership
AmigaLink BBS (03) 792 3918
Sysop Bohdan Ferens

Knoxcom Inc. Commodore U. Gr
71 Folkstone Cres
Ferntree Gully 3156
8.00pm, second Thursday e/m
Boronia Community Centre,
Park crs Boronia

Springvale CUGVIC
10 Sheridan Court
Dingley VIC 3172
2nd Monday each month
Dingley Community Centre
Commodore 64 User Group
Newsletter

Ballarat C-64 Club
142 Eureka Street
Ballarat Vic 3358
(053) 331 863 Cheryl Allen
Every Sunday 9.00am

Stawell Commodore Users Group
SCUG
P.O. Box 299 Stawell 3380
(053)582833 or 582777
Ellen Colbert
4th Wednesday e/m 7.30pm
Wimmera St, Community Centre
All Commodore Computers.

Horsham Commodore User Group
HORSHCUG
P.O. Box 676, Horsham, Vic 3400
(053) 824 345 Ian Rees
2nd Wednesday each month
7.30pm Various

Shepparton Commodore Computer
Club SCCC
11 Dunrobin St, Shepparton 3630
(058) 214746 Val Hutchinson
Fortnightly every Sunday evening
7.30 - 9.00pm
Shepparton Guide Hall
Cnr Nixon & Skene St.
Communicator (on disk).

Puckapunyal Commodore U.Gr.
P.O. Box 25
Puckapunyal 3662
(057) 931 194 Secretary
1st & 3rd Friday of each month

Border District Commodore U. Gr.
P.O. Box 536, Wadonga 3690
(060) 244 858 Melita Ball
Melrose Primary School
3rd Tuesday of each month
Border Line

Moe Commodore Users Group
20 Edward Crescent
Trafalgar Vic 3824
(056) 331 067 Phillip Warburton
Fortnightly - Wednesday
Moe Heights Kindergarten

Peninsula Commodore Users
Group PENCUG
C/o Red Hill Consolidated School
Flinders Rd, Red Hill Vic 3937
(059) 895 785 Luke Button
1st Wednesday/3rd Tuesday
Red Hill Consolidated School,
cnr. Arthurs Seat Rd & Flinders
Rd, Red Hill

Queensland

Redcliffe Peninsula Computer Club
RPCC

86 Longland Street, Redcliffe 4020
(07) 203 7367 J. Petterson
7pm 1st & 3rd Friday e/m
Masonic Lodge (near CES), Sutton
St, Redcliffe, Queensland
AARTEC INDUSTRIES 2097
(07) 283 3061

Brisbane Amiga Users Group
P.O. Box 853, Toowong 4066
(07) 203 4882 Peter Goed
Sysop Peter Goed (07) 203 4882

Brisbane Commodore Computer
Users Group (Qld)
P.O. Box 274, Springwood, 4127
(07) 3415651 Norm Chambers,
Cursor
(Sysop Greg Shea) (08) 345 2799

The Long Arm Police Computer
User Group
42 Chestnut Street, Wynnum 4178
(07) 396 2684 Sergt. Mel Whitney
The Long Arm

Southport Commodore Computer
Users Group S.C.C.U.G. 4215
Merv McFarlane, Secretary
Every Monday 7pm
Labradore State Primary School,
Gordon Street Entrance

Mermaid (Business) Users Group
P.O. Box 76, Mermaid Beach 4218
(075) 39 8427 Ron Perry
Fortnightly
Mermaid Computers, "Home In"
Shopping Complex, Gold Coast
Hwy, Mermaid Beach

Gold Coast Computer Club
P.O. Box 645
Palm Beach Qld 4221
(075) 562 336 Cyril White
every 2nd Tuesday 7-9pm
Elanora State School

Ipswich Commodore Computer
Users Group I.C.C.U.G.
R. Mansfield, 91 Downs Road,
North Ipswich 4303
(07) 288 8880/ Ron North (Sec)
2nd & 4th Tuesday of each month
East Ipswich State School
Feedback - monthly

The Happy Hackers Adventure
Club ADVNTNEW
MSF 550

Toogoolawah QLD 4313
(075) 83 5119 Stuart Elflett
Postal Group, Australia Wide
Adventure News

Toowoomba Commodore
Computer User Group
PO Box 5263, Toowoomba 4350
(076) 341 620 J. Larkin
Last Friday each month 7.30pm
Second Monday e/m 7.30pm
Toowoomba Education Centre
Baker St., Toowoomba

Pittsworth Microcomputer Users
Society
P.O. Box 166, Pittsworth, 4356
David Siebuhr
1st Monday e/m 4pm
Masonic Hall

Comstrad Computer Users Group
22 Wilson Street,
Caboolture Qld 4510
(075) 95 3566 Marcus Dwyer
1st/3rd Saturday e/m 6-9pm
Caboolture Anglican Church Hall
Syntax

Bundaberg Commodore Computer
User Group B.C.C.U.G.
P.O. Box 1713, Bundaberg 4670
(071) 727 794 Marian Cheshire
(Sec)
1st Sunday e/m Library
Bundaberg West State School
between noon and 4.00pm

Gladstone Amiga User Group
C/- S. Hamilton, P. O. Box 139
Gladstone 4680

Amiga User Group Rockhampton
4700
(079) 344 288 (AH) John Olsen

Rockhampton Commodore Users
Group ROCHCUG
P.O. Box 5733
Rockhampton Mail Centre 4702
Kay Lanyon
1st Monday each month
Berserker Street School
RCUG Newsletter

Mount Morgan Commodore User
Group
22 Dee Street,
Mount Morgan 4714
G. Thomas (Ass. President)

Commodore Users Group Mackay
MACKCUG
P.O. Box 422

Mackay QLD 4740
(079) 422 068 Ken Johnston
Wednesday fortnightly 7.30pm
Mackay Teachers Centre
Nelson Street

Proserpine Commodore User
Group
G. Ward, 5A Foxlee Street
Proserpine 4800
(079) 451 987 wk S. W. Croft -
President

Commodore User Group
(Townsville) 4810
() 726454 Tony Moore
7.30pm 1st Wednesday e/m
Ignatius Park College,
Computer Room

Mount Isa Amiga Users Group
C/ 147 Fourth Avenue
Mount Isa 4825

South Australia

South Australian Commodore
Computer Users Group SACCUG
P.O. Box 427,
North Adelaide SA 5006
(08) 210 4323 (W) Clive Palfry,
Secretary
7.30pm 1st & 3rd Tuesday e/m
Information Technology Training &
Enterprise, 253 Grenfell St., Adel.
Bits and Bytes

Amiga Users Group of Sth
Australia
P.O. Box 486, Glenside 5064
(08) 276 8882 Wayne Edge
Amiga Mag

The Barossa Users Group (BUG)
Computer Club
RMD Box 1, Daveyston
Via Greenock SA 5360
Mark T. Leske (Sec)

Amiga Users of the Northern
Territory A.U.N.T.
C/- 4/4 Armidale Street
Stuart Park NT 5790
R. Rawinski

Western Australia

Amiga Users Group of WA
AUGWA 6000
(09) 331 2601 Alex Lambert
2nd Tuesday every month
Curtin University

Commodore Computer User
Group, Northern Suburbs

CCUG/NS 234 Balcatta Rd
Gwelup, Perth WA 6021
09 448 5005 Wayne Dunstan
Herb Graham Center Mirrabooka
2nd & 4th Wednesday e/m

Morley Commodore User Group
MCUG
22 Marriot Way, Morley WA 6062
(09)2766287 John Roe
Every Tuesday, 7.30-9.30pm
Community Centre, Walter
Road, Morley
All Commodore Computers

KALAMIGA User Group
7 Norma St
Walliston 6076
Shannon O'Rourke Pres.

Commodore Computer Club W.A.
(Inc).
P.O. Box 146, Willetton, WA 6155
(09) 332 6374 Tom Lee
1st & 3rd Tuesday each month
Willetton High School
Amiga & C64

Waite Amiga Users
C/ Curtin Uni., 14 Colonial Dve
Bibra Lake 6163

Bull Creek Vic Ups Commodore
Computer Group V-CBULLC 862
Forrest Road, Jandakot WA 6164.
L. Boelan
1st & 3rd Tuesday
Willton High School

Hedland Commodore User Group
HCUG P.O Box 2551
South Hedland, WA 6722
(091)721-402.
All Commodore Computers.
(091)732275

Tasmania

Tasmanian Commodore Users
Association
G.P.O. Box 673
Hobart Tas 7001

Bay Amiga Club
P.O. Box 959, Hastings 7116
(070) 358 715 Jonathan Clarke

VK Commodore Users Group
VKCUG P.O. Box 168
Launceston Tas 7250
(003) 26 2401 R.K. (Bob)
Richards
On amateur radio 3.570MHZ
0900 UTC Sundays

Don't miss out on these great bargains!

Australian Commodore Review

Disk Magazines Nos 1 to 12

Disk Magazine 1 \$10

Forest Raiders : A full arcade game based on the movie Return of the Jedi. Centred around the forest chase. Full machine code shoot'em up.
Revolution : An article about the aftermath of the home computer revolution.
Recover II : This program enables you to unscratch files which you have accidentally scratched.
Bsave.bas : Saves a block of memory using BASIC poke functions and the normal save command.
Nice Lister : Produced formatted program listings converting hard to read cursor controls, color controls and graphic symbols into expanded exclamations within curly brackets.
Old.bas : Load this one and use it to retrieve a program you accidentally NEWed.
Catalog : Use this when you want to obtain a catalog of your disk directory without losing the program in memory.
Ultra-editor : Enhanced BASIC editor with special commands to make program modification easier.
CHARgraphics : Design a BASIC screen using the normal full screen editor. This program will convert it into line numbers, full instructions included.
Line Transfer : Move a block of BASIC program to a new place.
NEW Reset : Modified cold start routine.
Color Window : Full machine code routine for displaying a field color box on the screen.
Flash : Flash any area of the screen.
Input : A special program to enable entry of data without the usual problems of the user accidentally clearing the screen or entering illegal characters.
Border : Machine code routine to quick draw a border around any part of the screen.
Paint Demo : A Gascal program to paint a hi-res screen area.

Disk Magazine 2 \$10

ECF : A full demonstration version of the card file program with some limitations on the maximum number of cards. Try before you buy. Full instructions included.
Character Editor : Enables you to design your own custom graphics characters for use in game or other programs. Special boot loader also included.
Wacky.set : An upside down character set for the character editor.
Gothic.set : A gothic character set from the adventure game Underworld of Kin.
Computer.set : A computerish character set designed by Scott Wilcox.
Teleport : A simple terminal program.
3D.ult : An ultra BASIC 3D plotting program.
3D.bas : A standard BASIC 3D plotting program.
3D.sim : A Simon's BASIC plotting program.
Bytes and Bits : A complete tutorial explaining binary, hexadecimal and other computer number forms.

Disk Magazine 3 \$10

Construct-brix : A drawing program that works using the joystick enabling you to move different pieces into position to create an entire picture. Full instructions

built-in.
Bird Invaders : Machine code shoot'em up.
UDPG : Enables you to print user defined graphics on your printer.
Baspred : A BASIC sprite editor.
Calender : Prints out a calender for almost any year.
Point Square : For mathematics and geometry students.
Hangman : A fun computer version of this classic game with a good demonstration of character graphics.
Typing Practice : A simple touch typing program.
Labyrinth : A 3 dimensional maze type game.
Finance : Calculates loan repayments and various other costings.
Road Block : A fun multi-player, multi-speed block in your opponent game.

Disk Magazine 4 \$10

Graphics Workshop : A suite of design programs for producing graphics characters, sprites, sprite animation, hi-res graphics and split screen effects. Complete with tutorials, fully menu driven.
Typing Tutor : A complete touch typing tutor that automatically works on your weaknesses. A keyboard displayed on screen highlights the key to be pressed encouraging you to touch type correctly. Includes space game for the young at heart.
Directrix : A disk filing system by Paul Blair. Instructions included.
Plurals : Educational program for English students.
Probability : Mathematics program for math students.

Disk Magazine 5 \$10

Amiga Ball : A graphics animation based on the famous bouncing Amiga ball demonstrated during the Amiga's release.
The Porsche : An excellent multi-color hi-res picture.
Max Headroom II : A full screen animation.
Seven-Up : Brilliantly designed effect of a rotating can of Seven-up with accompanying music.
Sprite Database : Maintain a complete database of all your sprites as well as designing new ones and editing old ones. Instructions included.
Newsroom Loader : For MPS 802 and 1526 owners enables you to print Newsroom screens and borders.
Signwriter : Allows you to print a large sign to the MPS 802 or 1526.
Character Saves : Copy and save upper case, lower case or computer character set.
Dump Directory : Print a directory listing of any disk to your printer.
DD SGPrint : Prints a Doodle file to your MPS 802 printer.
PS BGPrint : Print Printshop pictures to your 1525/ MPS 802 printer.
Centronics Driver : This program enables you to use a Centronics printer in conjunction with a centronics cable connected directly to the user port. Such a cable is available as the GEOS cable. Just run the program and you can send any normal print output via the user port with or without ASCII conversion.

Disk Magazine 6 \$12

Burt the Bug : Good example of character graphics ani-

mation in this fun game of collect the fruit while avoiding the boot.

Hangman : An improved version on our earlier release.
Amiga Pharaoh : An Amiga picture ported to the Commodore 64 with some interesting effects and music.
Space Harrier : Music and graphics from the game.
Max Headroom : A still picture of this loveable character.
The Pacer : Brilliant perspective animation in this graphics demonstration with music.
Sade : Synthesized music by the popular artist.
Light Fantastic : An interactive demonstration enabling you to modify various aspects of this hi-res effect.
Dir828 : A compact disk directory program that sits in the cassette buffer.
Disk Filer : Enables you to catalog all your disks into one large file.
Disk Labels : Prints a disk label.
Dual Labeller : Prints two disk labels at a time.
Report One : Enables you to print your disk catalog in five columns based on either program name, ID or just the complete file.
1571 Utility : For Commodore 128 owners.
Home Inventory : Maintains a catalog and value for your entire home inventory. Ideal for insurance purposes.

Disk Magazine 7 \$12

Dark Forest : Between one and four players strategy game where you must conquer your opponents by capturing land areas or castles.
Joystick Tester : Double check that your joystick is working in all directions.
Irish Jokes : A collection of humorous one liners from our resident Irish joker.
Dice Roller : Lost the dice to your favourite board game recently? This program will simulate a random two dice throw.
Demonstrations : Karate Kid II, Thrust Concert, 3D demo, Don Martin, No More Heroes, Recursion, Funny, Whizzy, Transputer, Classics, Special.
Ps/Pm/Nr Converter : Exchange graphics between Printshop, Printmaster and Newsroom.
Ps Graph/Epson/CBM : A program to print Printshop graphics on either an Epson, Commodore or other printer.
Chord Maker : For guitar students, define a chord and print it out.
Anti-ISEPIC : Removes ISEPIC front end off snap shot- ted programs.
The Sledgehammer : Compact BASIC and machine language programs to save disk space.
Fast Format : Format disks on your 1541 in around 20 seconds.
Renumber : Renumber your BASIC programs for readability and space saving.
Graphics Editor : A complete machine language sprite and character editor by Andrew Crowther.
Sidekick v3.C : A huge array of DOS utilities and generally helpful programs.
Home Finance : For helping manage your home budget.
Oscilloscope : Use in conjunction with the interface designed by Andrew Baines to produce an oscilloscope display on your screen.
Ultimate Writer : Send musically accompanied letters

with redefined characters to your friends.

C64/128 Boot Maker :- Enables you to boot a 64 disk from 128 mode.

Convert BASICS :- Converts from BASIC two and four to BASIC seven on the 128. The program will read a specified file from disk then print a display of all unknown key words and line numbers that use PEEK, POKE, SYS, WAIT and USR. Output can go to the screen or a printer.

Disk Magazine 8 \$12

T & S Spreadsheet :- A full machine language track and sector editor for hackers and programmers.

Function Keys :- Enables you to define the Commodore eight function keys to a meaningful command.

Unscratch :- Undelete programs you have deleted.

Relocatable DIR :- A small program to retrieve a disk directory which may be placed anywhere in memory.

Tape Header Modifier :- Enables you to rename tape files.

Enterprise II :- Several hi-res pictures accompanied by interesting musical arrangements.

Eddie Demo :- Theme from the movie Beverly Hills Cop.

Games :- Full machine code shoot'em up.

ESCOS V2.99 :- Allows you to snapshot part of any graphics picture and produce a full screen display using 112 sprites.

Newsroom Camera :- Snapshot part of any hi-res graphic to produce Newsroom clip art.

Calendars :- An improved program to produce a calendar for any year.

Cheque Writer :- Fill in the details and print a professional looking cheque on the Westpac standard small size cheque.

Clock :- A special clock which is displayed in the border.

Future Writer :- A full blown hackers word processor for sending musical messages using a variety of type faces.

Disk Magazine 9 \$12

Disk Tidier :- Enables you to modify the order of your directory listing.

Menu Maker :- A simple boot loader for the front end of your own disks.

Doctor 64 :- Is your computer looking a little off color? This program passes a test through all the main devices selectable from a icon driven menu.

Sprites in the Border :- From our December 1987 issue demonstrating how to use sprites in the border this program enables you to edit your own message and display it scrolling in the border.

Sprite Clock :- The complete clock in the border pro-

gram by Andrew Baines.

Metric Converter :- 22 conversions from Imperial to Metric and reverse.

Stock Market :- An educational game.

Star Trek :- For all Trekkie fans here is an original version of that famous game.

Little Invoicer :- As appearing in the December 1987 edition this program enables you to run a basic invoicing system.

Demonstrations :- Alf, The Trap Demo, Future Shock, Pure Genius, DNA, XESS 1-Rendezvous, FTL Demo, Weird One II, Taurus II, Real Real Thing, Sights and Sound, Crazy Sample I, Brick Wall, Incredible, Drive Music, Get Funky.

Disk Magazine 10 \$12.95

- Features ADOS Menu System

Diary - Version One of our Appointment Manager System. Both the compiled and BASIC version are included.

Depreciation :- Educational program for demonstrating and calculating the process of depreciation using three commonly used methods.

Define Function Keys :- Yet another function key definition program. This one is particularly easy to use.

Hamlet :- A good version of the popular game Othello.

Cup Challenge :- A two player only using two joysticks sailing simulation.

Star Gunner :- Shoot'em up perspective view.

Chemistry :- Features the chemical symbols of the periodic table. Ideal for year 8 and 9 students.

Music 64 :- A full featured music editing program written in compiled BASIC.

Print Sheet Music :- Enables you to print out sheet music on your printer in case you run out of the real stuff.

Slide Show :- A brief selection of impressive graphics.

Demonstrations :- Amiga Memories, Beyond 2, Border Screen, Hero, Knight Games Music, Madonna Demo, The Working 64, Watch the Eye, ESCOS I, ESCOS with Music, Sting, Bairds Tale.

Disk Magazine 11 \$12.95

80 Characters :- A special driver enabling the display of 80 columns of text. Useful for your own BASIC programs.

Graphic Converter :- Transfer pictures between a variety of formats.

Line Number Deleter :- Allows you to perform block deletes from BASIC.

Function Keys :- Here is yet another function key program.

System Locator :- Helps you find the SYS call to start

a machine language program.

Fixed Directory :- Will reconstruct some disk corruption problems.

Disk Searcher :- Just enter the text that you are looking for and this program will try to locate it on your disk.

Disk Tidier :- Batch program deletion.

1541 Drive Alignment :- A quick utility which promises to align your disk drive - untested.

Disk Doctor :- Another program for reconstructing corrupt disks.

Hi-res Jigsaw :- This fun program lets you pick a picture and then it rearranges it into small blocks. Use the joystick to try and reconstruct the image.

Equation Manipulation :- Teaches the rules of equation manipulation. Helpful drill section.

Linear Equations :- Teaching and drill educational program.

Probability Demonstration

Printer Drivers :- Side Two of this disk contains a long list of printer drivers for GEOS including the 1526/ MPS 802 and many others.

Disk Magazine 12 \$12.95

Appointment Manager V1.2 :- Updated from Issue Ten, now with search and print options.

Third Term 1.0 :- A fully menu driven terminal program.

Panes :- Based on the July Issue, 1988 of ACR, this program allows you to produce simple windows and menus. Written by Andrew Baines.

Atlantis :- A fast shoot'em up where you are a fish underwater. Excellent graphics, lots of levels.

Circle Navigation :- As appearing in the June 1988 ACR. Calculates the distance between any two points on the globe.

Slope and Intercept :- Teaches the formulae involved for working out gradient, x and y intercepts. Full instructions included.

Music :- A selection of three music compositions by Eric Holroyd which you may include in your own programs.

GEOS Upgrade :- Side two contains a number of files which you should copy to a GEOS disk in order to upgrade to Version 1.3

Educational Programs :- Portfolio, Balance, Investment, Bonds. All have built-in instructions.

Time Crystal :- An interactive graphic demonstration by Jim Sachs. One of the masters of Commodore 64's graphic capabilities. This was the beginnings of a game which he never completed.

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Bulletin Boards

Access information

Mem: Membership required for full access.

Reg: Registration required.

VA: Visitor Access available to most functions.

LVA: Limited Visitor Access available.

Public: Public board, open to all.

File Server: FidoNet File Server (see below)

Most systems will allow you on to let you know their requirements. The registry specifically does not store exact details of what each system wants for access as the requirements change too often.

Baud information

✓ V21 - 300 Tx /300 Rx CCITT

V22 - 1200 Tx /1200 Rx CCITT

V22bis - 2400 Tx /2400 Rx CCITT

✓ V23 - 1200 Tx /75 Rx CCITT

✓ V23ORG - 75 Tx /1200Rx CCITT

V23 set to originate B103 - 300 Tx/300 Rx Bell (US)

B212 - 1200 Tx /1200 Rx Bell (US)

PEP - 9600+ Modem PEP Protocol

Unless otherwise shown all systems are 8 bit bytes, 1 stop bit, no parity.

FIDOnet

FIDOnet is a network of bulletin

boards that exchange mail and news. Systems accessible via FIDOnet have their net and node numbers included in square brackets as [net/node]. For more information logon to a Fido system, most have full details of the network online for browsing by users.

The registry has a special area within FidoNet called AUST PAMS. The latest news and changes are always in this area.

File Server

This is a system that does not have callers as such, what they have are files for downloading using FidoNet (Opus, Seadog, Dutchie etc) "File Request" processing.

General Information

The Australian PAMS Registry was formed to attempt to resolve the age old problem of obsolete Bulletin Board lists. Part of the philosophy of the registry is to make it worthwhile for all operators to list their system with the registry and to make use of the listings.

One method of making the listings attractive is that the issue of the lists is totally regular, at the beginning of each month the registry publishes a new version of the listing. This listing is clearly marked with the creation date and time and

is also given a release number (this release number is normally the year and month of issue, the January 1987 list would be given a release number of 8701).

The idea of providing the files is that they are available to anyone, sure there is a copyright notice, but that is to protect the viability of the lists, not to stop people using them.

Most Australian Fido systems carry the current list, this is because the Network Coordinators of Fido support the idea of up-to-date listings, this does not mean the lists are Fido only, they are FREE TO ANYONE. Look for the listings on your favourite system, if they are not there ask your sysop to get them for you, otherwise call the state coordinators bulletin board and get it from there, or try your nearest Fido system. If all else fails dial (02) 628-5222 and get it from Larry Lewis, Australian PAMS Coordinator, anyone can get the listings from Prophet without even registering for access!

Please help eradicate out of date listings, use the registry files, and if you find a system that is not listed advise the registry either by post, through one of the coordinators, on the Fido conference AUST-PAMS, or by leaving a message to sysop on the Prophet.

PAMS Listing

List published by the Australian PAMS Registry - Release: 8810 Sat 1 Oct 88

ACT

System: AMIGA Opus
Sysop: Wayne Miles
Phone: (062) 58-9967
Baud: V22 V22bis B103
Access: Public

System: Commodore Users Group BBS
Sysop: James Hacker
Phone: (062) 81-0847

System: PC Exchange Opus
Sysop: Phil Harding
Phone: (062) 58-1406
Baud: V21 V22 V22bis V23
Access: Mem LVA

System: PCUG Bulletin Board
Sysop: Alan Salmon
Phone: (062) 59-1244
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT
Note: Access free to members of PCUG : \$15pa incl monthly newsletter

System: Pharmacy BBS
Sysop: Michael Pye
Phone: (062) 92-3875
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg Public
Computer: Kaypro 16

New South Wales

System: 2000 and Beyond TBBS
Sysop: Greg Kuhnert
Phone: (02) 522-6514
Baud: V21 V22 V22bis V23 B212
Access: Mem VA
Computer: System One

System: 3M Australia Pty Ltd
Sysop: Graham Stair
Phone: (02) 498-9184
FIDOnet: 711/409
Baud: V21 V22 V22bis B103 B212
Access: Public
Hours: Weekdays: 1900 - 0700
Weekends: 24 Hours
Computer: IBM PS/2 Model 70

System: ABCOM-dataLINK
Sysop: Ben Sharif
Phone: (047) 36-4165
FIDOnet: 713/304
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM AT Clone

System: ACE (NSW) BBS
Sysop: Larry O'Keefe
Phone: (02) 529-2059
Baud: V21
Access: Mem Reg LVA
Computer: Atari

System: Aftermath BBS
Sysop: Ron & Andrew Clark
Phone: (02) 872-5520

Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: Amstrad 1640

System: Airlock Hermitage
Sysop: Greg Glynn
Phone: (02) 600-1822
FIDOnet: 713/609
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM PS/2 60

System: Albury & Wodonga Opus
BBS
Sysop: Andre Dowding
Phone: (060) 25-2647
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT Clone

System: Albury Connection
Sysop: George Rhedey
Phone: (060) 21-6005
FIDOnet: 712/204
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System Status: Offline
System: Alpha Juno BBS
System: Amiga MIDILine
Sysop: Andrew Khoo
Phone: (02) 868-4836
Baud: V22 V22bis B103
Access: Reg
Hours: Daily: 0000 - 0700

System: Amiga Zone BBS
Note: Now Called
Multicom Amiga BBS

System: AmigaLink BBS
Sysop: Ross Delaforce
Phone: (02) 953-7020
Baud: V21 V22 V22bis V23 B103
B212
Access: Mem VA
Computer: IBM AT Clone

System: AmigaMan
Sysop: Ron Carruthers
Phone: (047) 58-8006
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: Amiga 1000
DOS: AmigaDOS

System: Amstrad ABBS
Sysop: Riccay Schmahl
Phone: (02) 981-2966
FIDOnet: 714/903
Baud: V21 V22 V22bis V23

Access: Reg VA
Computer: Supercom 386

System: Apolloline BBS
Sysop: Richard Heppell
Phone: (02) 869-8349
Baud: V21 V22 V22bis V23 B103
B212
Access: Reg VA
Computer: Macintosh

System: Apple Users Group -
Apple // BBS
Sysop: Cameron Brawn
Phone: (02) 449-7798
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Apple //E

System: Apple Users Group - MAC
BBS
Sysop: Bruce Stanley
Phone: (02) 498-7084
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Macintosh

X System: Arrow KBBS
Sysop: Mark Sinclair
Phone: (02) 451-2660
Baud: V21 V22 V23
Access: Mem VA
Computer: C-64

System: AUGUR TBBS
Sysop: Mark James
Phone: (02) 311-3052
FIDOnet: 712/302
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM XT Clone

System: Australian Pick User's
BBS
Sysop: Kurt Johannessen
Phone: (02) 631-8603
Baud: V21 V22 V22bis V23
Access: Reg VA

System: BAD NEWS travels fast
Sysop: James Stevenson
Phone: (02) 540-1879
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM XT

System Status: Online
System: Beauford BBS
Sysop: Roger Cooper
Phone: (047) 58-6542
Baud: V21 V22 V22bis V23
Access: Public

Computer: IBM XT Clone

System: Bill's BBS
Sysop: Bill Mastro
Phone: (049) 62-2044
Baud: V21 V22 V23
Access: Reg
Computer: Apple IIE Clone

System: Blackboard BBS
Sysop: Will Black Stephen
Hudson Shane Anderson
Phone: (02) 525-6970
Baud: V21 V22 V22bis V23 B103
B212
Access: Reg VA
Computer: Amiga 500
DOS: AmigaDOS
BBSSoftware: BBS-PC!

System: Books BBS
Sysop: Jon Ruwolt & Chris
Ruwoldt
Phone: (02) 281-4791
Baud: V21 V22 V22bis V23
Computer: IBM XT Clone

System: Bramblebush
Sysop: Ken Allan
Phone: (02) 829-1809
Baud: V21 V22
Access: Mem Reg LVA
Computer: Clone88 turbo

System: Caamora Systems
Sysop: Johathan Michaels
Phone: (02) 630-6591
FIDOnet: 713/610
Baud: V22bis
Access: Reg LVA
Computer: IBM XT

System: Cavity
Sysop: Don Cunningham
Phone: (02) 675-1472
FIDOnet: 713/611
Baud: V21 V22 V22bis
Access: Mem Reg VA
Computer: Profound XT Turbo

System Status: Offline
System: Cesspit RAPL

System: Club Amiga BBS
Sysop: Ross Kellaway
Phone: (02) 521-6338
Baud: V21 V22 V22bis V23 B103
B212
Access: Mem LVA
Computer: Amiga 1000
DOS: AmigaDOS
BBSSoftware: BBS-PC!

System: Club Mac Remote
Maccess System
Sysop: Jason Haines
Phone: (02) 73-1992
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Macintosh

System: Club-80 RTRS
Sysop: Michael Cooper
Phone: (02) 332-2494
Baud: V21 V22 V22bis V23 B103
B212
Access: Mem VA
Computer: TRS80 Model 4

System: Coastal Opus BBS
Sysop: Kevin Mann
Phone: (043) 23-2275
FIDOnet: 711/430
Baud: V22 V22bis V23
Access: Reg VA
Computer: IBM AT Clone

System: CoCo Arena
Sysop: John Kelly
Phone: (02) 646-5573
FIDOnet: 712/625
Baud: V21 V22 V23 B103 B212
Access: Reg LVA
Computer: IBM XT Clone

System: CoCo Connection
Sysop: Barry Darnton
Phone: (02) 618-3591
Baud: V21 V22 V22bis V23
Access: Reg
Computer: IBM PC

X System: Comet C-64 BBS
Sysop: Eric Davis
Phone: (02) 599-7342
Baud: V21 V23
Access: Mem VA
Computer: C-64
Note: Requires UlatraTerm or
Palette on C-64

X System: CommLink BBS
Sysop: Jeff Campbell
Phone: (043) 41-3135
Baud: V21 V22
Access: Mem Reg VA
Computer: Commodore

System: Commodore C-64
Sysop: Graham Lee
Phone: (02) 664-2334
Baud: V21 V22 V23
Access: Mem VA
Computer: C-64
BBSSoftware: Punter

✓System: Commodore Pursuit
KBBS

Sysop: Warren Hillsdon

* Phone: (02) 522-9507

Baud: V21 V22 V23

Access: Mem VA

Computer: C-64

BBSSoftware: KBBS

System: Compax Computers BBS

Sysop: Alex Sardo

Phone: (02) 683-3956

FIDOnet: 713/601

Baud: V21 V22 V22bis V23

Access: Mem

Computer: IBM XT Clone

System: Computrol

Sysop: Robert Spence

Phone: (02) 489-6848

Baud: V21 V22 V22bis V23 B103 B212

Access: Public

Computer: IBM XT Clone

System: Contact BBS

Sysop: Peter Hall

Phone: (02) 798-6368

Baud: V21 V22 V23 B103 B212

Access: Mem Reg

Computer: IBM XT

System: CSACE BBS

Sysop: Larry O'Keefe

Phone: (02) 529-8249

Baud: V21

Access: Mem LVA

Computer: Atari 800

Note: Atari protocol only, logon : delay answering machine for : 30 seconds then BBS

System: Cursor Contact Amiga BBS

Sysop: Greg Minahan

Phone: (02) 637-8131

Baud: V21 V22 V23

Access: Reg LVA

Computer: Amiga 500

DOS: AmigaDOS

BBSSoftware: BBS-PCI

System: Cybersoft Opus

Sysop: Heath Rogers

Phone: (02) 212-2261

FIDOnet: 712/202

Baud: V22 V22bis PEP

Access: Reg LVA

Computer: IBM XT

*System: Delta Net

* Sysop: Geoff Arthur

Phone: (02) 457-9831

FIDOnet: 711/416

Baud: V21 V22 V22bis V23

Access: Public

System: Dharruk BBS

Sysop: Tony Prichard

Phone: (02) 625-3246

FIDOnet: 713/612

Baud: V21 V22 V23

Access: Reg VA

Computer: Ulatra XT Turbo

System: Dick Smith Elect. BBS

Phone: (02) 887-2276

FIDOnet: 711/808

Baud: V21 V22

Access: Public

Computer: Multitech PC-500

*System: Down Under KBBS

Sysop: Glen Myles

* Phone: (02) 674-6647

Baud: V21

Access: Mem VA

Computer: C-64

System: Eagle One BBS

Sysop: Terry Harvey

Phone: (02) 745-3190

FIDOnet: 712/704

Baud: V21 V22 V22bis V23

Access: Reg LVA

Computer: IBM AT Clone

*System: Eagle's Nest C-64 BBS

* Sysop: Philip Dean

Phone: (02) 451-0535

* Baud: V21

Access: Mem VA

Computer: C-64

System: Edlink BBS

Sysop: Craig Sinclair

Phone: (02) 232-5584

FIDOnet: 712/205

Baud: V21 V22 V22bis V23

Access: Reg LVA

Computer: IBM XT Clone

*System: Excalibur

* Sysop: Kevin Scott

Phone: (02) 896-1063

* Baud: V21 V22 V22bis V23 B103 B212

Computer: C-64

System: FairStar BBS

Sysop: Robert Thomas

Phone: (02) 570-4555

Baud: V21 V22 V22bis V23 B103 B212

Access: Mem VA

Hours: Daily: 1800 - 0800

Computer: Commodore PC-10

System Status: Offline

System: Fido Australia

System: First Nice MIDILine

Sysop: Andrew Khoo

Phone: (02) 868-4347

FIDOnet: 711/805

Baud: V22 V22bis B103 PEP

Access: Public

Computer: IBM XT

System: Flex or Die

Sysop: Joshua Levy

Phone: (02) 558-0129

FIDOnet: 712/507

Baud: V21 V22 V22bis V23

Access: Reg VA

Computer: IBM AT Clone

System: Galaxy RAPL

Sysop: Chris Nelligan

Phone: (02) 875-3943

Baud: V21

Access: Mem LVA

BBSSoftware: Proboard //

System: HighTech

Sysop: Ross Wheeler

Phone: (060) 25-1813

FIDOnet: 712/201

Baud: V21 V22 V22bis V23 B103 B212 PEP

Access: Reg LVA

Computer: IBM AT Clone

Note: 147.575 Mhz VK2DGY

(Radio) : 1200 bps Amateur

Packet Radio

System Status: Offline

System: Home Base BBS

System Status: Offline

System: Hornet Amiga BBS

System Status: Offline

System: HyperHouse BBS

*System: Illawarra C-64 BBS

Sysop: John Simon

* Phone: (042) 61-8230

Baud: V21

Access: Reg VA

Computer: C-64

BBSSoftware: KBBS

System: Integra TEX

Sysop: Kevin Leong

Phone: (02) 746-1109

FIDOnet: 712/703

Baud: V21 V22 V22bis V23

Access: Public

Computer: IBM AT Clone

System: Intersoft BBS

Sysop: Craig Heading

Phone: (02) 476-2391

FIDOnet: 711/411

Baud: V22 V22bis

Access: Mem Reg LVA

Computer: Tandy 2000

System: Konektion Business Link

Sysop: Robert Earle

Phone: (02) 906-1354

Baud: V22

Access: Reg VA

Computer: IBM XT Clone

System: Landover Amiga BBS

Sysop: Lance Lyon

Phone: (02) 319-1793

Baud: V21 V22 V22bis V23 B103 B212

Access: Mem LVA

Computer: Commodore PC5

DOS: PC DOS

BBSSoftware: BBS-PC!

System: Lodestone BBS

Sysop: Ian McWhirter

Phone: (02) 456-3264

FIDOnet: 711/407

Baud: V22 V22bis B103

Access: Reg

Computer: IBM XT Clone

System: Mail Dispatch

Sysop: Matthew Wood & Andrew

Avery

Phone: (02) 969-5861

FIDOnet: 711/905

Baud: V21 V22 V22bis V23

Access: Mem Reg

Hours: Daily: 1600 - 0700

Computer: IBM XT Clone

✓System: Manly BBS

Sysop: Chris Patten

* Phone: (02) 977-6820

* Baud: V21 V22 V23

Access: Reg VA

Note: Requires Ultraterm or

Palette on C-64

System: Micro

Sysop: Kevin Bessell

Phone: (02) 543-7041

Baud: V21 V22 V22bis V23

Access: Reg LVA

Computer: IBM AT Clone

System: Micro Design Lab

Sysop: Kevin Lowton & Lindsay

Gorrie

Phone: (02) 663-0151

Baud: V21

Access: Reg VA
System: Micro Mart C Users
Sysop: Rick Polito
Phone: (02) 560-3607
FIDOnet: 712/501
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: DECA AT
Note: C & dBase User System

System: MicroBASE BBS
Sysop: Dave Whiteman
Phone: (047) 35-2415
FIDOnet: 713/305
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone

System: Millway's
Sysop: David Coucke
Phone: (02) 357-7027
FIDOnet: 712/306
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg VA
Computer: Amiga 1000
DOS: AmigaDOS
BBSSoftware: QuickBBS

✕ System: Moebius Trip
Sysop: David Butler
Phone: (02) 439-7072
FIDOnet: 711/408
Access: Mem VA

System: Multicomm Amiga
Sysop: Richard Duffy
Phone: (02) 771-6351
Baud: V22 V22bis B103 B212
Access: Mem LVA
Computer: Amiga 1000
DOS: Amiga
BBSSoftware: BBS-PC!

System: Nebula RAPL
Sysop: Sean Craig
Phone: (02) 407-2729
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: Apple IIs

System: NetComm Australia
Sysop: Bill Bolton
Phone: (02) 887-3297
FIDOnet: 3/113
Baud: V22 V22bis PEP
Access: File Server
Hours: Weekdays: 1900 - 0900 :
Weekends: 24 Hours
Note: Software support system for
FidoNet : SysOps - File Request

ONLY : Wazoo and Bark requests
honoured

System: New Frontiers CBCS
Sysop: Howard Pew
Phone: (046) 25-6954
FIDOnet: 713/204
Baud: V21 V22 V23 B103 B212
Computer: IBM XT Clone

System: Newcastle Amiga BBS
Sysop: Stan White
Phone: (049) 58-7099
Baud: V21 V22 V22bis V23
Access: Public
Computer: Amiga 1000
BBSSoftware: BBS-PC!

System: Newcastle Micro Club
RCPM
Sysop: Tony Nicholson
Phone: (049) 68-5289
Baud: V21 V22 V23
Access: Mem VA
Hours: Weekdays: 1700 - 0830
: Weekends: 24 Hours
Computer: Ferguson Big Board

System: Night Shift BBS
Sysop: Binky
Phone: (02) 635-8175
Baud: V21 V22 V23 B103 B212
Access: Public
Hours: Daily: 2030 - 0500
Computer: TRS-80

System: Nightmare BBS
Sysop: Todd Wright
Phone: (02) 545-1132
FIDOnet: 712/503
Baud: V21 V22 V22bis V23
Access: Reg
Computer: FTC 1600XT

System: Omega Board BBS
Sysop: Paul Speirs
Phone: (02) 792-1526Baud: V21
V22 V22bis V23 B103 B212
Access: Reg
Computer: Amiga 500
DOS: AmigDOS
BBSSoftware: BBS-PC!

System Status: Offline
System: Omen RTRS

✕ System: Palantir C-64 BBS
Sysop: Steve Sharp
Phone: (060) 40-1284
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA

System: Pandemonium
Sysop: Mark Farnan
Phone: (02) 411-7642
FIDOnet: 711/414
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM XT Clone

System: Paragon Bulletin Board
Sysop: Jennifer Allen
Phone: (02) 597-7477
FIDOnet: 712/502
Baud: V21 V22 V22bis V23
Access: Reg VA
BBSSoftware: TBBS

System: PC Users Group - IBM
Board
Sysop: John Clarke
Phone: (02) 724-6813
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT

System: PC Users Group -
Microcomp Board
Sysop: Bruce Edney
Phone: (02) 540-1842
FIDOnet: 712/505
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM PC

System Status: Offline
System: PC Users Group -
Westpac Board

✕ System: Phantomland
Sysop: Bob James
Phone: (02) 399-7716
Baud: V21 V22 V23
Access: Reg VA
Computer: C-64
BBSSoftware: KBBS

System: Playground BeeBS
Sysop: Brett Selwood
Phone: (02) 534-6944
FIDOnet: 712/504
Baud: V21 V22 V22bis V23 PEP
Access: Mem Reg LVA
Computer: IBM AT Clone

System: Poet's Dilemma
Sysop: John Della-Torre
Phone: (02) 804-6412
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM PC

System: Program Paradise

Note: Now Called
: Mail Dispatch
System: Prophet TBBS
Sysop: Larry Lewis
Phone: (02) 628-3959
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: RCOM C-64 BBS
Sysop: Simon Finch
Phone: (02) 667-1930
Baud: V21 V22 V23 V23ORG
B103 B212
Access: Reg VA
Computer: C-64
BBSSoftware: RCOM
Note: Requires UltraTerm or
Palette on C-64

System: RUNX
Sysop: Mark Webster
Phone: (02) 487-2426
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: PDP11/73
DOS: Xenix

System: SBA BBS
Sysop: Bob Wilson
Phone: (02) 411-1850
FIDOnet: 711/406
Baud: V22 V22bis
Access: Reg LVA
Computer: IBM AT

System: Sci-Fi BBS
Sysop: Greg Hope
Phone: (02) 646-4865
Baud: V21 V22 V23
Access: Public

System: Scorpio BBS
Sysop: Russ Morrison
Phone: (02) 831-3249
FIDOnet: 713/604
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone

System: Sentry
Sysop: Trev Roydhouse
Phone: (02) 428-4687
FIDOnet: 711/401
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM AT Clone

System: Shore BBS
Sysop: Jason Sharp & David Kok
Phone: (02) 959-3936
Baud: V21

Access: Reg VA
Hours: Weekdays: 1800 - 0730
: Weekends: 24 Hours
Computer: Macintosh

System Status: Offline
System: Shortwave Possums

System: Silent Running
Sysop: Frank Sinatra
Phone: (02) 599-1711
Baud: V21 V22 V22bis V23
Access: Reg
Hours: Weekdays: 1430 - 0730
: Weekends: 24 Hours
Computer: Apple

System: Silicon City
Sysop: Ted Harrison
Phone: (02) 713-7891
FIDOnet: 712/705
Baud: V21 V22 V22bis
Access: Public
Computer: Ultra AT

System: Small Business
Sysop: Geoff Bilborough
Phone: (049) 50-4211
Baud: V21 V22 V22bis V23
Computer: IBM XT Clone

System: SMUG Bee RCP/M
Sysop: Stephen Thompson
Phone: (02) 476-6396
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: Microbee

System: Software Connection
Sysop: Graeme Nichols
Phone: (02) 975-1006
FIDOnet: 714/404
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM XT Clone

System: Software Tools
Sysop: Bill Bolton
Phone: (02) 449-2618
FIDOnet: 711/403
Baud: V22bis PEP
Access: Reg VA
Computer: Sharp 7501 AT

System: Sorcerer Users Group
Sysop: John Cepak
Phone: (02) 626-8020
FIDOnet: 713/607
Baud: V22 V22bis B103
Access: Mem VA

System: Sorcim microS

Sysop: John Caine
Phone: (065) 59-4537
FIDOnet: 711/405
Baud: V21 V22 V22bis V23 PEP
Access: Reg
Hours: Daily: 2100 - 0800
BBSSoftware: QuickBBS

System Status: Offline
System: South Coast Amiga BBS

System: Statesman
Sysop: Michael Gayford
Phone: (047) 33-1010
FIDOnet: 713/307
Baud: V22 V22bis PEP
Access: Reg
Computer: IBM XT Clone

System: Steel City
Sysop: Craig Sinclair
Phone: (042) 83-7247
FIDOnet: 712/420
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM XT Clone

System: Sydney CAE BBS
Sysop: Geoff Shearsby
Phone: (02) 660-8272
FIDOnet: 712/628
Baud: V21 V22 V22bis
Access: Reg LVA
Computer: IBM XT

System: Tachyonics
* Sysop: Richard Lenz
Phone: (02) 438-2682
Baud: V21 V22
Access: Reg VA

System: Tech Exchange
Sysop: Chris Moran
Phone: (02) 713-1447
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT Clone
System: Tesseract RCPM+
Sysop: Scott MacDonald
Phone: (02) 820-1325
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: Collex

System: Texpac Electronic
* Magazine
Phone: (02) 319-1009
Access: Mem LVA

System: The Baud Walk
Sysop: Gary Blythe
Phone: (02) 868-5885
Baud: V21 V22 V22bis V23

Access: Reg LVA
Computer: Wang PC240
System: The Black Hole
Sysop: Ken Thompson
Phone: (02) 81-4253
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM XT Clone

* System: The Commodore Spot
Sysop: Chalk
Phone: (02) 534-5565
Baud: V21
Access: Reg VA
Computer: C-64
BBSSoftware: KBBS

System Status: Offline
System: The Exchange KBBS

System Status: Offline
System: The Ivory Tower

System: The Kiwi Konektion
Sysop: Robert Earle
Phone: (02) 439-6178
FIDOnet: 711/410
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM XT

System Status: Offline
System: The Library

System: The Lost Tavern
Sysop: Sean Murphy
Phone: (02) 938-6836
FIDOnet: 714/902
Baud: V21 V22 V22bis V23
Computer: Blue Chip PC/XT

* System: The Pig Pen BBS
Sysop: Michael Pigram
Phone: (02) 630-3693
Baud: V21
Access: Public
Hours: Weekdays: 1930 - 063
Weekends: 24 Hours
Computer: C-64
BBSSoftware: Hal

System: The Runway
Sysop: Colin Lean
Phone: (02) 569-5130
FIDOnet: 712/506
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM XT
System: The Twilight Zone
Sysop: The Mystic Machine
Phone: (065) 72-3970
Baud: V21 V22 V23
Access: Reg VA

Hours: Weekdays: 2100 - 0600 :
Weekends: 24 Hours
Computer: Apple //e

System: TNT Shuttle
Sysop: Paul Birch
Phone: (02) 319-3112
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg LVA
Computer: IBM System/2

System: Trantor
Sysop: Matthew Geier
Phone: (02) 543-6899
Baud: V21 V22 V22bis B103 B212

Computer: MicroBee
DOS: CP/M
BBSSoftware: ROS
Note: * RINGBACK *

* System: Triops BBS
Sysop: Pdisk
Phone: (063) 62-9715
Baud: V21
Access: Public
Hours: Daily: 2100 - 1800
Computer: C-128
BBSSoftware: KBBS

System: Ventura Publisher BBS
Phone: (02) 449-0463
Baud: V21 V22 V22bis
Access: Reg
Note: Xerox Ventura Publisher Support BBS

System: Wollongong Amiga BBS
Sysop: Peter Nicholson
Phone: (042) 27-3927
Baud: V21 V22 V22bis
Access: Reg VA
Hours: Weekdays: 1730 - 0800
: Weekends: 24 Hours
Computer: Amiga 2000
DOS: AmigaDOS
BBSSoftware: BBS-PC!

System: YABB
Sysop: Jonathan Chin
Phone: (02) 804-6837
FIDOnet: 711/803
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM XT Clone

System Status: Offline
System: Your Computer

System: Zeta
Sysop: Nick Andrew

Phone: (02) 627-4177
FIDOnet: 713/602
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Note: C, Unix & Minix Users

Northern Territory

System Status: Offline
System: Outback RCPM

New Zealand

System: Love Over Gold
Sysop: Jeremy Scrivener
Phone: (04) 277-900
FIDOnet: 771/100
Baud: V21 V22
Access: Mem VA
Computer: IBM XT Clone

System: Planet-Patrol
Sysop: Mark Stephens
Phone: (09) 60-8408
Baud: V22
BBSSoftware: Wildcat

System: Poly Vox
Sysop: Darrin Gordon
Phone: (03) 79-1917
Baud: V21 V22 V22bis
Access: Reg
Hours: Weekends ONLY
Computer: IBM PC Clone
System: QuantumNET
Sysop: Jeff Whiteside
Phone: (064) 36-9602
Baud: V21 V22
Access: Mem
Computer: IBM AT Clone

System: Southern Express!
Sysop: Phil Walding
Phone: (024) 87-7440
Baud: V21 V22 V23
Access: Reg LVA
Computer: Atari 130 XE
Note: Logon either ASCII or ATASCII

System: The Guide
Sysop: Steve Davis
Phone: (03) 43-0461
FIDOnet: 770/201
Baud: V22 V22bis
Access: Reg VA
Hours: Weekdays: 1800 - 1000
BBSSoftware: GTPower

System: The Plains
Sysop: Steve Mellis

Phone: (03) 52-5930
FIDOnet: 770/400
System: Tony's BBS
Sysop: Tony Hall
Phone: (03) 83-1155
FIDOnet: 770/101

Papua New Guinea

Sysop: Daltron
Phone: (675) 25-6984
FIDOnet: 710/11
Baud: V21 V22 V22bis V23 B103 B212
BBSSoftware: Opus

Queensland

System: AARTEC Industries 2097
Sysop: The Shadow
Phone: (07) 283-3061
Baud: V21
Access: Mem VA
Hours: Daily: 1900 - 0700

System: Access North
Queensland
Phone: (070) 51-0566
Baud: V21 V22 V23
Access: Reg LVA
Computer: IBM XT Clone

System: AMPAK PBBS/RCPM
Sysop: Brian Wendt & John Bews
Phone: (07) 263-7070
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg
Computer: AMPRO
Note: 144.90 Mhz VK4KJB-1
: 1200 bps Amateur Packet Radio

System: Apple-Q Node 1
Sysop: Graham Black & Vince Crosdale
Phone: (07) 284-6145
Baud: V21 V22 V22bis V23
Access: Mem
Computer: Apple //e

System: Apple-Q Node 2
Note: Now Called
: Phoenix BBS

System: BaudWalk BBS
Sysop: Geoff Ryan
Phone: (07) 285-5814
Baud: V21 V22 V22bis V23 B103 B212

System: Brisbane Commodore
User Group

Note: Now Called
Commodore Computer Users
Group Qld
System: Brisbane MicroBee User
Group
Sysop: Graham Scott
Phone: (07) 366-4833
Access: Mem VA

System: BrisBug
Sysop: Ron Lewis
Phone: (07) 841-1768
FIDOnet: 640/801
Baud: V21 V22 V22bis V23 PEP

System: Christian BBS
Sysop: Andrew Johnston
Phone: (07) 253-7917
FIDOnet: 640/220
Baud: V22
Access: Public
Computer: Ultra Turbo XT

System: Coelurus BBS
Sysop: Peter Brewer
Phone: (075) 63-2621
FIDOnet: 640/601
Baud: V22 V22bis
Access: Reg VA
Hours: Weekdays: 2100 - 0800
: Weekends: 24 Hours
Computer: IBM XT Clone

System: Commodore Computer
Users Group
Sysop: Greg Shea
Phone: (07) 344-1833
FIDOnet: 640/304
Baud: V21 V22 V22bis V23 B103 B212

System: Commodore Computer
Users Group Qld
Sysop: Colin Canfield
Phone: (07) 395-6725
Baud: V21 V22 V23
Access: Mem VA

System: Comtel BBS
Sysop: Warren Mason
Phone: (077) 89-1655
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: Commodore 64
DOS: Basic IEEE
BBSSoftware: Comtel

System: Cyberpunk City
Sysop: Greg Mc Cormick
Phone: (07) 355-0760
FIDOnet: 640/303

Baud: V21 V22 V23 B103 B212
System: Educational RBBS
Sysop: Andrew Waddell
Phone: (07) 266-3369
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT clone
Note: USERWORKS Node #1

System: Electric Dreams BBS
Sysop: Joe Altoff
Phone: (07) 399-1322
Baud: V21 V22 V23
Access: Mem VA
Note: User Works Node # 5

System: Excalibur BBS
Note: Now Called
: Christian BBS

System: FAR-NOR-64 BBS
Sysop: Ian Pearse
Phone: (070) 54-6892
Baud: V21 V22 V23 B103 B212
Access: Mem Reg LVA
Computer: C-64
DOS: BASIC IEEE
BBSSoftware: BBS64
System: Fix BBS
Note: Now Called
: MilliWays BBS

System: Galaxy GateWay
Computer
Sysop: James Collins
Phone: (07) 207-8900
Baud: V22
Access: Reg VA
Computer: Amiga 500
DOS: AmigaDOS
BBSSoftware: BBS-PC!

System: Greenhorn Experimental
Sysop: Mike Richardson
Phone: (07) 208-2640
FIDOnet: 640/301
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: Cleaveland 286

System: Herston Experimental
BBS
Note: Now Called
: Excalibur BBS
System: Hi-Tech CBBS
Sysop: Clyde Smith-Stubbs
Phone: (07) 300-5235
Baud: V21 V22 V23

System: Kangaroo Point TAFE
Sysop: Troy O'Malley
Phone: (07) 393-1763

Hours: Weekdays: 0900 - 2200
: Weekends: 24 Hours
System: Listline Experimental
Phone: (07) 353-3718
Baud: V21 V23

System: Mackay High School BBS
Sysop: Bob Chalmers
Phone: (079) 51-4815
Access: Public
Hours: Weekdays: 1600 - 0730
: Weekends: 24 Hours

System: Marlin-Coast BBS
Sysop: Ray Chalmers
Phone: (070) 51-7220
FIDOnet: 640/501
Baud: V22 V22bis B103 PEP
Access: Reg VA
Computer: Cleveland 286

System: MilliWays BBS
Note: Now Called
: BaudWalk BBS

System: Missing Link BBS
Sysop: Mike Barber
Phone: (07) 808-3094
Baud: V21 V22 V23
Access: Reg
Computer: C-64
BBSSoftware: Punter

System: NQ Connection
Sysop: Geoff Gordon
Phone: (077) 79-7660
FIDOnet: 640/710
Baud: V22 V22bis B103 PEP
Access: Reg VA
Computer: Kaypro XT

System: Ozforum
Sysop: Greg Noonan & Dirk Vanbruggen
Phone: (07) 209-4294
Baud: V21
Access: Reg

Hours: Weekdays: 1700 - 070
: Weekends: 24 Hours

System: Phoenix BBS
Sysop: Kelvin Saggars
Phone: (07) 800-4660
Baud: V21 V22 V22bis V23
Access: Mem

System: Redcliffe Library
Sysop: Andrew Osborne
Phone: (07) 283-0315
FIDOnet: 640/203
Baud: V21 V22 V22bis V23
Access: Reg VA
Hours: Weekdays: 1700 - 0800
: Weekends: 24 Hours
Computer: IBM Clone

System: Rock Cave BBS
Sysop: Rick Dalley
Phone: (07) 395-1809
Access: Mem VA
Note: User Works Node # 4

System: Sidecar Express BBS
Sysop: Brendan Pratt
Phone: (075) 46-3252
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg
Computer: Amiga Sidecar
DOS: MS DOS
BBSSoftware: Focus
Note: User works node 7

System: Software 80 BBS
Sysop: Tony Melius
Phone: (07) 369-7103
Baud: V21
Access: Reg VA
Hours: Weekdays: 1930 - 0800
: Sat 1430 - Mon 0800

System: Stanley's Place
Sysop: John Wain
Phone: (07) 264-4747
FIDOnet: 640/212
Baud: V21 V22 V22bis
Access: Reg VA
Computer: IBM XT Clone

System: Sun City Opus

System: Sunshine Coast Connection
Sysop: Brian Boseley
Phone: (071) 44-2889
FIDOnet: 640/401
Baud: V21 V22 V22bis V23
Access: Public
Hours: Mon - Sat: 2000 - 0800
: Sun: 24 Hours
Computer: IBM AT Clone

System Status: Offline

System: Swiss Pavilion BBS
Sysop: Peter Moll
Phone: (07) 846-4069
Baud: V21 V22
Access: Public
Computer: IBM Model 50
System: The Galaxy GateWay Computer System
Note: Now Called
: Galaxy GateWay Computer

System: TommorrowLand BBS
Sysop: David Drummond
Phone: (07) 371-0944
FIDOnet: 640/305
Baud: V21 V22 V23

System: Toowoomba RBBS
Sysop: Chris White
Phone: (076) 30-1762
Baud: V21
Access: Mem Reg LVA
Hours: Daily: 2100 to 0630
Computer: C-128

Access: Reg LVA
Computer: Cleveland PCII

System: Transcendental Connection
Sysop: Kenneth Page
Phone: (07) 281-9418
Baud: V21 V22 V23
Access: Reg VA
Computer: C-64
BBSSoftware: BBS64

System: TurboLink Australia
Sysop: Viv Brunner
Phone: (07) 862-1860
Baud: V21 V22 V22bis V23 B103 B212
Computer: IBM XT Clone

System: Youth Extension Service (Toowoomba)
Sysop: Wayne Bucklar
Phone: (076) 39-1790
FIDOnet: 640/302
Baud: V21 V23
Access: Public
Computer: Sperry

South Australia

System: Adelaide AMiga user group (ADAM)
Sysop: Greg Hicks
Phone: (08) 270-2455
FIDOnet: 680/805
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT

System: Aquarium BBS
Sysop: Bream LeFish / Martin Sandiford
Phone: (08) 270-4341
FIDOnet: 680/807
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: PC230

System: Burning Bush
Sysop: Douglas Carthew
Phone: (08) 272-8405
FIDOnet: 680/811
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System Status: Offline
System: Club Opus CBCS

System: MICRO SHACK
Sysop: Geoff Hurst
Phone: (08) 231-9550
FIDOnet: 680/812
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone

System: Multiple System BBS
Sysop: Danny Vozzo
Phone: (08) 255-5116
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: Apple //+

System: Nexus Education Dept BBS
Phone: (08) 243-2477
Baud: V21
Access: Mem
System: Nobbiboard
Sysop: Ben Noblet
Phone: (08) 370-2211
Baud: V21 V23
Access: Public
Hours: Weekdays: 2300 - 1500
: Weekends: 2300 - 0900
Computer: Amiga 1000
DOS: AmigaDOS
BBSSoftware: TAG-BBS

System: Opus City
Sysop: Bruce Kelly
Phone: (08) 384-7621
FIDOnet: 680/816
Baud: V21 V22 V22bis
Access: Reg LVA
Hours: Mon - Sat: 24 Hours
Computer: IBM XT Clone

System: Oracle PC-Network
Sysop: Don Crago & Grayham Smith
Phone: (08) 260-6222
FIDOnet: 680/804
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT Clone

System: Phone Box BBS
Sysop: Darryl Merritt
Phone: (08) 380-5505
FIDOnet: 681/854
Baud: V21 V22 V23
Access: Public
Computer: Mitec

System: S A C BBS
Sysop: Austen Evans
Phone: (08) 387-0249

Baud: V21 V22 V23 V23ORG B103
B212
Access: Mem LVA
Computer: C-128

System: SA Country CBCS
Sysop: Martin Crockett Phone:
(085) 22-4434
FIDOnet: 681/853
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: Sorcerer Users Group
BBS
Sysop: Steve Fraser
Phone: (08) 260-6576
Baud: V21
Access: Mem LVA
Computer: Pulsar LBB

System: The Bureau BBS
Sysop: Patrick Browne
Phone: (08) 258-1466
FIDOnet: 681/855
Baud: V21 V22 V23
Access: VA
Computer: Kaypro XT

System Status: Online
System: The Hackers Retreat
Sysop: John Wayne
Phone: (08) 266-2408
FIDOnet: 681/857
Baud: V21 V22 V23
Access: Mem LVA
Computer: Commodore PC
DOS: MS DOS
BBSoftware: Opus

System: The IDN Board
Sysop: Dave Winfield
Phone: (08) 352-2252
FIDOnet: 681/852
Baud: V21 V22 V22bis
Access: Reg LVA
System: The Key Board
Sysop: Paul Lawrence
Phone: (08) 344-5354
FIDOnet: 680/814
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM Clone
System: The Olympic Board
Sysop: Greg Sanderson
Phone: (08) 265-4232
FIDOnet: 680/801
Baud: V21 V22 V22bis
Access: Public
Computer: IBM AT Clone

System: Trivia BBS

Sysop: Daron Ryan
Phone: (08) 377-0049
Baud: V21 V23
Hours: Weekdays: 1800 - 0800 :
Weekends: 24 Hours

System: VK5UP BBS
Sysop: Dave Winfield
Phone: (08) 281-4160
FIDOnet: 681/851
Baud: V22
Access: Reg LVA
Computer: IBM Clone

Tasmania

System: Hobart Users Bulletin
Board
Sysop: Alan Hughes
Phone: (002) 43-5041
FIDOnet: 670/700
Baud: V21 V22 V23
Access: Reg VA
Computer: IBM XT Clone

System: Tassie Bread Board
System
Sysop: Ian Campbell
Phone: (003) 26-4248
FIDOnet: 670/751
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Kaypro PC

Western Australia

System: Amiga Mouse BBS
Sysop: Martyn Bate
Phone: (09) 310-2457
Baud: V21 V22 V22bis V23 B103
B212
Access: Reg LVA
Computer: Amiga 1000
DOS: Amiga DOS
BBSoftware: BBS-PC!

System Status: Offline
System: AMSNet BBS

System: Bit-Board
Sysop: John Hamill
Phone: (09) 417-3706
FIDOnet: 692/622
Baud: V21 V22 V22bis V23
Access: Public
Computer: Everex AT

System: Computex BBS
Sysop: Russell Stokes
Phone: (09) 447-0522
Access: Reg VA

System: Kalgoorlie College RCP/M

Sysop: Graham Clark
Phone: (090) 21-7755
Baud: V21 V22 V22bis V23
Access: Reg VA

System: Kardinya Turbo BBS
Sysop: Tony Salmeri
Phone: (09) 331-1695
Baud: V21 V22 V23 B103 B212
Access: Reg LVA
Computer: IBM XT Clone

System: Lightning BBS Line 1
Sysop: Simon Blears
Phone: (09) 275-8225
FIDOnet: 690/601
Baud: V22 V22bis B212 PEP
Access: Reg LVA
Computer: IBM XT Clone

System: Mini Omen
Sysop: Greg Watkins
Phone: (09) 279-8555
Baud: V21 V22 V23
Access: Public
Computer: TRS-80

System: Murdoch University
ES-BBS1
Sysop: Roger Atkinson
Phone: (09) 332-2604
Baud: V21
Access: Mem VA
Computer: Commodore 128D
DOS: CP/M
BBSoftware: Turbo BBS
System: Nemo 3
Sysop: Graeme Platt
Phone: (09) 370-3333
Baud: V21 V22 V22bis V23
Access: Mem

System: Nemo Games Machine
Sysop: Graeme Platt
Phone: (09) 370-2666
Baud: V21 V22 V22bis V23
Access: Mem LVA

System: Nemo Multiple BBS RAPL
Sysop: Graeme Platt
Phone: (09) 370-1855
Baud: V21 V22 V22bis V23

System: Oasis ST BBS
Sysop: Lou Schillaci
Phone: (09) 430-5431
Baud: V21 V22
Access: Mem LVA
Computer: Atari

System: Omen III RTRS
Note: Now Called

Perth Omen
System: Paragon Computers BBS
Phone: (09) 325-5160
Baud: V21 V22 V22bis V23
Access: Public
Computer: Atari ST

System: Pegasus Entertainment
System
Sysop: Michael Russell & John
Chin
Phone: (09) 344-8025
FIDOnet: 692/620
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: Epson AX

System: Perth Omen
Sysop: Mark Dignam
Phone: (09) 244-2111
Baud: V21 V22 V22bis V23
V23ORG
Access: Mem Reg
Computer: TRS-80

System: Perth PC Users BBS
Phone: (09) 227-9229

System: Student Access
Message Service
Sysop: Peter Walton & John
Bramley
Phone: (09) 321-9721
Baud: V21 V22 V23
Access: Reg VA

System: Terminal BBS
Sysop: Andrew Milner
Phone: (09) 389-8048
FIDOnet: 692/625
Baud: V21 V22 V22bis V23 B103
B212
Access: Public

System: The Codiack Republic BBS

Sysop: Simon Shaw
Phone: (09) 481-2139
FIDOnet: 692/623
Baud: V21 V22 V22bis V23
Access: Reg
Hours: Weekdays: 1700 - 0800
: Weekends: 24 Hours
Computer: IBM AT

System: The Gathering BBS
Sysop: Ken Peters
Phone: (09) 272-4711
FIDOnet: 691/611
Baud: V21 V22 V23

System: The Hotel
 Sysop: Rod Evans
 Phone: (09) 325-4752
 FIDOnet: 691/612
 Baud: V21 V22 V22bis V23
 Access: Public
 Computer: IBM AT Clone

System: The Turing Circus
 Sysop: Phil Sutherland
 Phone: (09) 385-2100
 FIDOnet: 690/603
 Baud: V21 V22 V23 B103 B212
 Access: Public
 Computer: IBM XT Clone

System: Treasure Island
 Sysop: Gloria Platt
 Phone: (09) 271-0471
 Baud: V21 V22 V23
 Access: Reg VA

System Status: Offline
 System: WA Atari BBS

System: West Coast BBS
 Sysop: Mark Gaynor
 Phone: (09) 445-3080
 Access: Reg VA

System: West-Gate BBS
 Sysop: Phil van Leen
 Phone: (09) 481-0489
 FIDOnet: 691/613
 Baud: V21 V22 V22bis V23 B103 B212
 Access: Reg VA
 Computer: IBM AT Clone

System: Z-Node 62
 Sysop: Lindsay Allen

Copyright <c> 1987 - Prophet
 Computer Services
 Please report changes Australian
 PAMS Coordinator or new listings
 to:
 Prophet Bulletin Board PO Box
 E41, Emerton NSW 2770
 Electronic Prophet TBBS (02)
 628-5222 V21.V22.V22bis.V23
 FidoNet [713/606]

New South Wales
 3/113 NetComm Australia
 711/401 Sentry
 711/403 Software Tools
 711/405 Sorcim microS
 711/406 SBA BBS
 711/407 Lodestone BBS
 711/408 Moebius Trip

711/409 3M Australia Pty Ltd
 711/410 The Kiwi Konektion
 711/411 Intersoft BBS
 711/414 Pandemonium
 711/416 Delta Net
 711/430 Coastal Opus BBS
 711/803 YABB
 711/805 First Nice MIDILine
 711/808 Dick Smith Electronics
 BBS
 711/905 Mail Dispatch
 712/201 HighTech
 712/202 Cybersoft Opus
 712/204 Albury Connection
 712/205 Edlink BBS
 712/302 AUGUR TBBS
 712/306 Millway's
 712/420 Steel City
 712/501 Micro Mart C Users
 712/502 Paragon Bulletin Board
 712/503 Nightmare BBS
 712/504 Playground BeeBS
 712/505 PC Users Group -
 Microcomp Board
 712/506 The Runway
 712/507 Flex or Die
 712/625 CoCo Arena
 712/628 Sydney CAE BBS
 712/703 Integra TEX
 712/704 Eagle One BBS
 712/705 Silicon City
 713/204 New Frontiers CBCS
 713/304 ABCOM-dataLINK
 713/305 MicroBASE BBS
 713/307 Statesman
 713/600 Prophet TBBS
 713/601 Compax Computers BBS
 713/602 Zeta
 713/604 Scorpio BBS
 713/607 Sorcerer Users Group
 713/609 Airlock Hermitage
 713/610 Caamora Systems
 713/611 Cavity
 713/612 Dharruk BBS
 714/404 Software Connection
 714/902 The Lost Tavern
 714/903 Amstrad ABBS

Victoria

632/306 Down Under Amiga/IBM
 632/313 Bayside Opus
 632/322 Brainstorm Australia
 632/323 Melbourne PC Users
 Group BBS
 632/342 The Software Bank
 632/343 Eastwood Opus
 632/344 Dr Blaze
 632/345 PHYSI-CHALL
 632/347 East Suburb Eighty User
 Group
 632/349 MESA RBBS

632/351 Melbourne PIE
 633/360 Zoist
 633/361 AIM - Access In
 Melbourne
 633/362 MBUG Australia Inc
 633/365 Valicomm Opus
 633/367 The CadPhone
 633/368 SMART BBS
 633/371 Micom CBCS
 633/374 Miki's Opus CBCS

Queensland

640/203 Redcliffe Library
 640/212 Stanley's Place
 640/220 Christian BBS
 640/301 Greenhorn Experimental
 640/302 Youth Extension Service
 (Toowoomba)
 640/303 Cyberpunk City
 640/304 Commodore Computer
 Users Group
 640/305 TomorrowLand BBS
 640/401 Sunshine Coast
 Connection
 640/501 Marlin-Coast BBS
 640/601 Coelurus BBS
 640/710 NQ Connection
 640/801 BrisBug

South Australia

680/801 The Olympic Board
 680/804 Oracle PC-Network
 680/805 Adelaide AMiga user
 group (ADAM)
 680/807 Aquarium BBS
 680/811 Burning Bush
 680/812 MICRO SHACK
 680/814 The Key Board
 680/816 Opus City
 681/851 VK5UP BBS
 681/852 The IDN Board
 681/853 SA Country CBCS
 681/854 Phone Box BBS
 681/855 The Bureau BBS
 681/857 The Hackers Retreat

Western Australia

690/601 Lightning BBS Line 1
 690/603 The Turing Circus
 691/611 The Gathering BBS
 691/612 The Hotel
 691/613 West-Gate BBS
 692/620 Pegasus Entertainment
 System
 692/622 Bit-Board
 692/623 The Codiac Republic
 BBS
 692/625 Terminal BBS

Tasmania

670/700 Hobart Users Bulletin
 Board

670/751 Tassie Bread Board
 System

Papua New Guinea
 710/11 PNG One

New Zealand
 770/101 Tony's BBS
 770/201 The Guide
 770/400 The Plains
 771/100 Love Over Gold

**Here is the contact list for
 all of the coordinators in
 Australia.**

ACT Coordinator

Mr Phil Harding
 PC Exchange RIBM
 (062) 58-1406

FidoNet [626/220]

NSW Coordinator

Mr Rodney Creer
 Prophet TBBS
 (02) 628-5222

FidoNet [713/606.2]

Victorian Coordinator

Mr Rowan Stevens
 Brainstorm Australia
 (03) 758-7086
 FidoNet [631/322]

Queensland Coordinator

Mr Brian Wendt
 AMPAK RCP/M
 (07) 263-7070

SA Coordinator

Mr Grayham Smith
 The Electronic Oracle
 (08) 260-6222

WA Coordinator

Mr Graeme Platt
 Nemo Multiple BBS RAPL
 (09) 370-1855

Australian Coordinator

Mr Larry Lewis
 Prophet TBBS
 (02) 628-5222
 FidoNet [713/606] - Preferred
 [713/600]

You can also post general
 news onto the FidoNet EchoMail
 conference AUST PAMS which is
 available nationally as a public
 area.

NetMail, Fido again, general
 enquiries to Larry Lewis at
 713/606.

Postal registrations, enquiries
 to PO Box E41, Emerton NSW
 2770.

C64 Software Guide

including Peripherals and Books

For addresses and phone numbers of distributors, see last page of Guide.

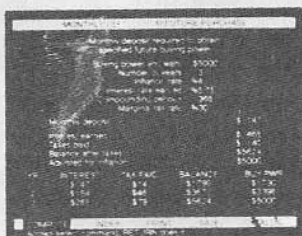
Accounting

Business Form Shop
CMT \$75

Electronic Cash Book 64
CMT \$99

A full cash book program for home and small business. Australian designed and supported. Recommended.

Financial Cookbook (disk)
ECP \$24.95



Kwik Check
PAC \$19.95

Complete cheque reconciliation, includes expense analysis.

M128 Cash Book
COM \$149
CMT \$79

M128 Debtors

COM \$149
CMT \$79

M128 General Ledger
COM \$149
CMT \$79

M128 Invoicing
CMT \$79

M64 Creditors
COM \$99
CMT \$79

M64 Debtors
COM \$99

M64 General Ledger
COM \$99
CMT \$79

M64 Invoicing
CMT \$79

M64 Sales Analysis/Invoicing
COM \$99

M64 Stock Control
COM \$99
CMT \$79

Partner 128
COM \$99

Pro Tutor Accounting 128
CMT \$99
An accountancy learning package.

Sideways
CMT \$45

VizaStar 128
COM \$195

Books

Bard's Tale III Clue Book
ECP \$24.95

Big Tip Book for C64/128
CMT \$39.00

C64 Programmers Reference Guide
New Edition
CMT \$39.00

C64/128 Collection Vol. 2
CMT \$25.00

CAD on the C64/128
CMT \$39.00

Commodore 128 Subroutine Lib.
CMT \$35.00

Commodore 64 Whole Memory
Gde.
SLM \$29.95

Commodore C64 Exposed
SLM \$19.95

Commodore C64 Sound & Graphics
SLM \$19.95

GEOS Inside & Out
CMT \$39.00

GEOS Official Prog. Guide
CMT \$45.00

GEOS Tricks & Tips
CMT \$35.00

GEOSMAN (Book and Disk Set)
PAC \$69.95
Comprehensive instruction manual for the GEOS system. Complete with disk utilities.

Machine Language Games C64
CMT \$25.00

Mapping the 128
CMT \$25.00

Personal Acct. Manager C64/128
CMT \$25.00

Second Book of 128
CMT \$25.00

Software Projects
SLM \$15.95



"This accounting software package should suit you, sir ... It doesn't leave an audit trail."

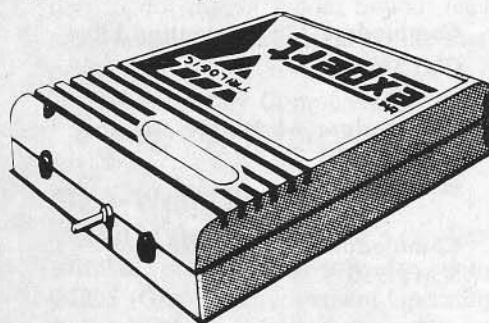
Supercharge Your C64
SLM \$19.95

CAD

CADPAK 128
CMT \$109
Complete CAD design.

Cartridges

Expert V3.2 S/D
MIC \$24.95
(See DOS Utility)



Final Cartridge
PAC \$139.95

Freeze Machine
MIC \$99
Enhanced freeze frame.

Cockroach Graphics Utility
MIC / Cockroach \$65.95

Super Snapshot
WEST \$129.95

Warp Speed
YPA \$59.95
CMT \$89
Fast loader.

Communication

Comodem
CMT \$249
Inc. C64 s/ware on disk
300 and 1200/75 baud

Megamodem 12,123
Avtek \$325
Automatic dial, answer and disconnect,
Hayes compatible.

Vitel Adaptor
COM \$249
Interface and software to connect to
phone and talk to Videotext services
such as Vitel.

MicroComm Modem
Avtek \$299
Previously known as the Netcomm
Pocket Modem. Pocket sized, auto an-
swer, Hayes instruction set. Variable
baud rates - 300, 1200/75, 1200 Full.

Database/File Management

Fleet Filer
CMT \$49

Instant Recall
PAC \$49.95
Speedy database for instant recall.

Kwik File
PAC \$19.95
Ideal database for the first time user 50
definable fields.

Magpie Database
PAC \$69.96
Very powerful management program.

Pocket Filer Series 2 64/128
QUE \$89.95
Easy to use.

Superbase 128
CMT \$89
Programmable database manager with
fast access to records. Relative files.

Superbase 64
CMT \$89
As C128 version.

Desktop Publishing

Award Maker
CMT \$69
PAC - \$39.95

Business Card Maker
CMT \$99

Car Sign Designer
CMT \$59

Certificate Maker
CMT \$89

Fantasy Fonts
CMT \$49
for Printmaster.

GeoPublish
CMT \$89
Ideally suited for desktop publishing.
Graphics-based, so can display text in
WYSIWYG form.

Newsroom
DATA \$56.95
Easy to use, menu driven, multi-part
program. Not quite as good as more re-
cent competitors.

Outrageous Pages disk
ECP \$79.95
A poorly written desktop publishing pro-
gram with BASIC enhancement.



Paperclip Publisher
ECP \$49.95
Powerful, full featured package. Up to
15 columns per page, linked boxes.

Poster Printer
ECP cass \$8.99

Print Power
PAC \$59.95
Print Power takes up where Printmaster
and Print Shop left off.

Multi fonts Printmaster Plus
CMT \$69

Printshop
QUE \$79
plus bonus pack.

Printshop Backup C64
QUE \$18.95

Stop Press
CMT \$109
(Same as Outrageous Pages!)

DOS Utility

A variety of DOS utilities, including some of the simpler DOS speed up devices.

1541 Mash II

PAC \$49.95

Save time and money by aligning your own disk drive.

Disk Master

MIC \$43.95

EPYX Fast Load Cartridge

QUE \$49.95

Freeze Machine V3.0 U/D

MIC \$24.95

Freeze, fast save, multiple save, fast format, file copier etc.



Renegade

CMT \$69

Disk to disk copier.

Cockroach Turbo ROM 64/128

MIC / Cockroach \$44

DOS Utility - Category A

The following cartridges offer a mixture of DOS enhancement, and backup facilities, along with extra BASIC commands and functions.

Action Reply Mk IV

PAC \$149.95

The ultimate add-on cartridge. With warp 25 disk turbo backup ability and more. Load 200 Block Warp files in under 5 seconds.

Expert V3.2

MIC \$108

User programmable and easily updated to cope with latest developments. Disk backup.

Final Cartridge III

PAC \$139.95

25 times disk turbo. Windows, and pull down menus. Picture snapshot. Well documented.

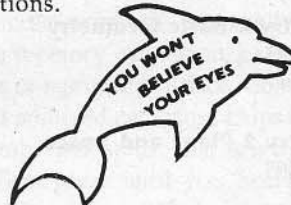
DOS Utility - Category B

The following devices specialise in providing a faster DOS for the 1541 and C64.

Dolphin DOS 64/128

MIC \$169

Two new ROMs, parallel cable, super enhanced disk commands. Monitor. Up to fifteen times faster in most operations.



Excelerator DOS

MIC \$199

Untested - said to be superior to Dolphin DOS.

Kwik Load

PAC \$19.95

Complete disk utilities package. Cheap but effective.

MACH 5 Cart. V2.A C64

QUE \$49.95

Speeds up disk access. Provides extra commands. Works with 1571/81.

DOS Utility - Category C

These programs and cartridges provide disk backup facilities. Some only work in conjunction with other hardware.

Dolphin Copy

MIC \$33

For use with Dolphin DOS.

Double Image II

MIC \$54.95

An Australian made disk and file copy system.

Freeze Frame 3B

MIC \$65

Quick easy to use snapshot cartridge for archiving programs Disk to Disk/Tape or Tape to Tape/Disk.

Freeze Frame V2.0 U/D

MIC \$24.95

Freeze Machine

MIC \$99

Enhanced version of Freeze Frame, with fast DOS system, snapshot facilities, menu driven.

Parameter Pak

PAC \$24.95

100 parameters for those programs which require them.

Drives

Alternatives to the 1541 drive

Excelerator Plus

MIC / H&R \$299

Slimline design, dip switches for device selection. Slightly faster operation on some functions. External Power Supply.

Pactronics Disk Drive

PAC \$349

Replacement for the 1541 Commodore disk drive. Has Ceramic Read/Write heads for durability. External power supply. 12 month warranty. Bonus Kwik Load.

Education

1St Degree/Adv. Linear Equat.

YPA \$49.95

Level 7 - 12

Addition & Subtraction

YPA \$49.95

Level 1 - 4

Algebra 1/Vol.1 Sets/Notations

PAC \$49.95

Sets, set notation,, set types.

Algebra 1/Vol2 Number Systems

PAC \$49.95

Number uses

Algebra 2/Vol1 Equat/Formulae

PAC \$49.95

Terms and expressions

Algebra 2/Vol2 Linear Equation

PAC \$49.95

Linear equations

Algebra 3/Vol 1 Polynomials

PAC \$49.95

Operations on polynomials, functions

Astro Talk disk

YPA \$19.95

Better Maths

PAC disk \$18.95 tape \$14.95

Age 12 - 16

Better Spelling

PAC disk \$18.95 tape \$14.95

Age 9 - Adult

Binomial Multipl/Factoring

YPA \$49.95

Level 7 - 12

Biology

PAC disk \$18.95 tape \$14.95

Age 12 - 16

Biology 1 - Respiration

PAC \$49.95

Mechanics of breathing

Biology 2 Digestion/Nutrition

PAC \$49.95

Nutrients

Biology 3 Reproduction/Develop

PAC \$49.95

Male and female reproductive systems
embryonic development etc.**Biology 4 Circulation/Heart**

PAC \$49.95

Blood C64 Education Pack

COM \$99

Chem Lab

OZI disk \$39.95

Chemistry

PAC disk \$18.95 tape \$14.95

Age 12 - 16

Chemistry 1 The Atom

PAC \$49.95

Dalton

Chemistry 2 The Periodic Table

PAC \$49.95

Periods

Decimals, Multiplication & Division

YPA \$49.95

Level 5 - 8

Decimals: Addition/Subtraction

YPA \$49.95

Level 5 - 8

Fractions Addition/Subtraction

YPA \$49.95

Level 5 - 8

Fractions Multiplic & Division

YPA \$49.95

Level 5 - 8

Geography

PAC disk \$18.95 tape \$14.95

Age 12 - 16

Geometry 1 Basic Geometry

PAC \$49.95

Perimeter

Geometry 2 Plane and Space

PAC \$49.95

Circles

Graphing Linear Functions

YPA \$49.95

Keyboard Cadet

YPA cass and disk \$19.95

Keys to Typing disk

ECP \$34.95

LCL Micro Maths

PAC / MICRO tape \$39.95 disk \$49.95

Advanced mathematics program aimed
at the older student (Year 9 - 11)**Let**

ECP \$8.99

Logo

COM \$80

Magic Maths

PAC disk \$18.95 tape \$14.95

Age 3-7

Math Mileage disk

YPA \$19.95

Maths Mania

PAC disk \$18.95 tape \$14.95

Age 8 - 12

Multiplication & Division

YPA \$49.95

Level 2 - 8

New and Improved Mastertype

YPA \$54.95

Physics

PAC disk \$18.95 tape \$14.95

Age 12 - 16

Physics 1 Motion

PAC \$49.95

Speed and velocity

Physics 2 Light

PAC \$49.95

Waves Read Easy

YPA \$19.95

Sesame Street

PAC \$29.95

Range of educational programs for ages
4-6. Covers problem solving**Simultaneous & Quadratic Equation**

YPA \$49.95

Statistics 1 Intro

PAC \$49.95

Sampling

Success with Algebra Set #1

YPA \$79.95

Success with Algebra Set #2

YPA \$79.95

Thinking Cap

CMT \$69

Trigonometry 1 Intro

PAC \$49.95

Trigonometric functions

World Geography

CMT \$49

GamesNot a comprehensive list - there
are too many!**1942**

ECP disk/cass \$19.95

4 x 4 Off Road Racing C64

QUE disk \$34.95 cass \$24.95

Four wheel drive racing car game simu-
lation.**6 Pack cass**

ECP cass \$24.95 disk \$34.95

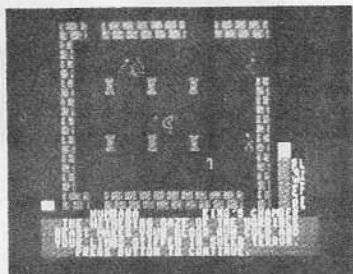
Acroject C64

QUE cass \$39.95 disk \$49.95

Action Extra cass
SLM cass/disk \$29.95

Action Pack (3 games)
ECP \$34.95

Adventure Construction Set
ECP \$24.95



Age of Adventure
ECP \$24.95

Airborne Ranger C64 Disk
QUE disk \$59.95 cass \$49.95
Action commando game.

Alien Syndrome
OZI cass \$29.95 disk \$39.95
All action shootem- up

Airwolf
ECP cass/disk \$19.95

All Star Test Cricket (64/128)
PAC \$39.95

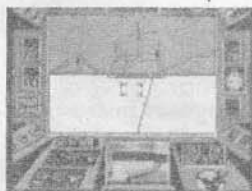
New Cricket Amnesia
ECP \$34.95

Annals of Rome
SLM cass \$29.95 disk 34.95

Arac
YPA cass \$12.95 disk \$19.95
Arcade adventure with ladders puzzles.

Archon II/Adept
ECP \$24.95

Arctic Fox
ECP \$34.95
Tank game set in arctic.



Aussie Pack (10 games) disk
ECP disk/cass \$24.95
Action/Strategy

Balkan Raider
ECP \$69.95

Barbarian II
CMT \$49

Barbarian
SLM \$34.95

Bards Tale
ECP cass \$24.95 disk \$49.95
Adventure game

Bards Tale II
ECP \$34.95

Bard's Tale III
ECP \$49.95

Battle for Midway
SLM cass \$19.95 disk \$24.95
War game

Battle of Britain
SLM cass \$19.95 disk \$24.95

Battleships
ECP cass/disk \$24.95

Bedlam cass
SLM cass \$27.95 disk \$32.95

Better Dead Than Alien 64
QUE disk \$39.95 cass \$29.95
Comical version of space invaders. Lots of variation.

Beyond the Ice Palace cass
ECP cass \$24.95 disk \$34.95
Levels and ladders type game set in mystic surroundings

Bismarck
SLM cass \$29.95 disk \$34.95

Black Jack Academy
CMT \$69

Black Lamp
QUE cass \$29.95 disk \$39.95

Blackjack
ECP cass \$24.95 disk \$34.95

Blockbusters
YPA disk \$49.95

Bombjack II
ECP cass \$24.95 disk \$34.95

Bombjack
ECP cass/disk \$19.95

Bride of Frankenstein
ECP cass \$24.95 disk \$34.95

Bubble Bobble
QUE disk \$39 tape \$29
Platform game coupled with fast shoot-em-up action. 100 levels of action.

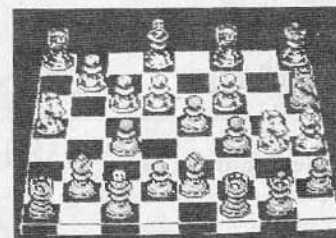
Buggy Boy
ECP disk \$34.95 cass \$24.95
Multi-course buggy racing game. Good graphics and game play. Recommended.

C64 Software Pack
COM \$99

California Games
QUE cass \$24.95 disk \$34.95

Chaos
ECP cass \$24.95 disk \$34.95

Chessmaster 2000 cass
ECP cass \$24.95 disk \$89.95



Chuck Yeagers Flight Simulator.
ECP cass \$24.95 \$34.95
Top class flight simulation. Various jets & scenarios. Different views.

Classic Quest
PAC \$49.95
A series of intriguing text only adventures with various levels of difficulty; from reasonably easy to almost impossible.

Club House Sports
YPA \$49.95

Cluedo
SLM cass \$32.95 disk \$39.95

Commando

ECP cass/disk \$19.95

Concentration

PAC \$29.95

Match the pairs of prizes and if you solve the puzzle behind them before your opponent then all the prizes you have matched are yours.

Conflict in Vietnam

QUE cass \$39.95 disk \$49.95

Conflicts 1 disk

SLM disk \$34.95 cass \$29.95

Compilation of three strategy games.

Conflicts 2 cass

SLM cass \$29.95 disk \$34.95

Three strategy simulations.

Corruption

QUE \$49.95

Adventure game - you deal with corruption and danger in a broking firm.

Create a Calender

QUE \$34.95

Crocodile Down Under cass

ECP cass \$24.95 disk \$34.95

Journey through the Northern Territory infested with ferocious crocodiles.

Crossword Magic

YPA \$49.95

Crusade in Europe 64

QUE \$49.95

Cut & Paste

ECP \$24.95

Cybernoid II

OZI cass \$29.95 disk \$39.95

Multi- directional shoot-em -up

Dan Dar II cass

SLM cass \$29.95 disk \$34.95

Darkhorn

ECP \$34.95

Darkside

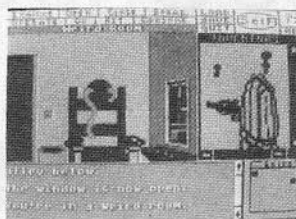
CMT \$39

Defender of the Crown

YPA disk \$54.95 cass \$30

DejaVu: A Nightmare Comes True

YPA \$54.95

**Delta Patrol**

ECP cass/disk \$24.95

Destroyer

QUE \$34.95

Dig Dug

YPA \$19.95

Dragons Lair

ECP \$34.95

Draw Poker cass

ECP cass \$24.95 disk \$34.95

Earth Orbit Station

ECP \$34.95

Echelon + Lipstick 64 disk

QUE disk/cass \$79.95

3D space adventure/strategy/flight simulator. Uses voice activated fire button on headset.

Elite 64

QUE cass/disk \$49.95

A classic space trader adventure game. Vector graphics and animation. A top-rating game still well worth playing.

Empire Strikes Back

ECP cass \$29.95 disk \$34.95

Enlightenment 64

QUE cass \$29.95 disk \$39.95

Experian Vision 64

QUE \$49.95

F-15 C64 disk

QUE disk/cass \$49.95

Faery Tale Adventure

QUE \$69.95

Falklands

SLM \$19.95

Family Feud

PAC \$29.95

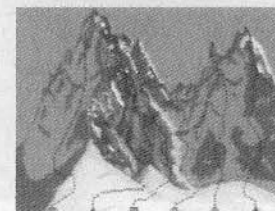
All the colour, drama and excitement of the TV game show. Race against the clock as you try to answer the questions.

Felony

YPA \$19.95

Final Assault

QUE \$34.95

**Fire & Forget**

QUE \$39.95

Fire Power

QUE \$49.95

Flight Simulator II (D)

QUE \$99.95

Classic flight simulation

**F/S II Japan Scenery Disk**

CMT \$49

F/S II Scenery Disk #3

CMT \$49

F/S II Scenery Disk #4

CMT \$49

F/s II Scenery Disk #5

CMT \$49

F/s II Scenery Disk #7

CMT \$49

Contains 12 pages of instructions plans

F/s II Star Scenery San Fran.
CMT \$49

F/s Scenery Disk #2
CMT \$49

Flt Sim Scenery Dk 1 C64
QUE \$49.95

Flt Sim Scenery Dk 2 C64
QUE \$49.95

Flt Sim Scenery Dk 3 C64
QUE \$49.95

Flt Sim Scenery Dk 4 C64
QUE \$49.95

Flt Sim Scenery Dk 5 C64
QUE \$49.95

Flintstones, The
OZI *cass* \$29.95 *disk* \$39.95
Based on the cartoon characters - a lot of fun.

Flying Shark C64 *cass*
QUE *cass* \$29.95 *disk* \$39.95

Fox Fights Back
OZI *cass* \$29.95 *disk* \$39.95
You are a fox on the hunt for food. Original and entertaining.

Frank Brunos Boxing
ECP *cass/disk* \$19.95

GI Hero C64
QUE *cass/disk* \$29.95

Galaxian
YPA \$19.95

Games Summer Edition 64
QUE *cass* \$24.95 *disk* \$34.95

Games Winter Edition C64
QUE *cass* \$24.95 *disk* \$34.95

Ghosts & Goblins
ECP *cass/disk* \$19.95

Golf Construction Set
ECP *cass/disk* \$19.95

Gothik C64
QUE *disk* \$39.95 *cass* \$29.95

Guiderian
ECP \$34.95

Guild of Thieves
QUE \$59.95

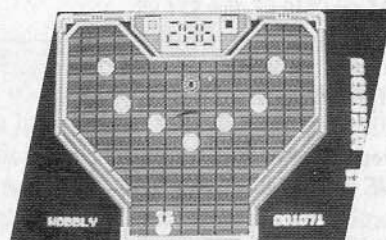
Gulf Strike
ECP \$34.95

Gunship C64
QUE *cass* \$49.95 *disk* \$59.95

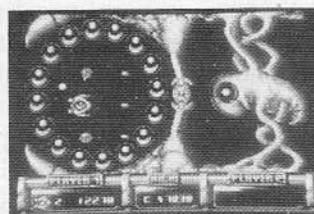
HitchHikers Guide-Galaxy
QUE \$49.95

Hitpack - 5 Game Pack
ECP *cass/disk* \$24.95

Hot Shot
YPA *cass* \$29.95 *disk* \$36.95
Action-packed-you need to be a crack shot pinball wizard and ace controller.



I.O. C64
QUE *cass* \$29.95 *disk* \$39.95
Sideways scrolling shoot-em-up.



Ikari Warriors
ECP *cass* \$24.9 *disk* \$34.95

Impact
PAC \$39.95
The Best selling arcade type game to come to the 64.

Impossible Mission II
QUE \$34.95
Second instalment of Impossible Mission. Your objective is to save the world from the psychotic genius Elvin. Levels/ action game.

Intensity C64
QUE *cass* \$29.95 *disk* \$39.95

Inside Outing
OZI *cass* \$29.95 *disk* \$39.95
3 D adventure

Into the Eagle
YPA \$49.95

Iwo Jima
SLM \$19.95

Jeopardy
PAC \$29.95
Over 1000 questions of the popular TV game show. Play against the computer or up to 2 other players. The computer supplies questions

Jet
CMT \$79 / QUE \$89.95
Combat simulation with multiple JETS. Various scenes and scenery.

Jewels of Darkness
QUE *cass/disk* \$49.95

Jinxter
CMT \$59 / QUE \$59.95
Adventure game.

Joker Poker
COM \$29.95
Sit back and relax. Fully mouse driven

Junior Pac-Man
YPA \$19.95

Kat Trap
ECP *cass/disk* \$19.95

Knight Orc C64
QUE *cass/disk* \$49.95

L.A. Crackdown
CMT \$59
QUE - \$34.95
Detective action game

Leader Board Security Key
QUE \$8.95

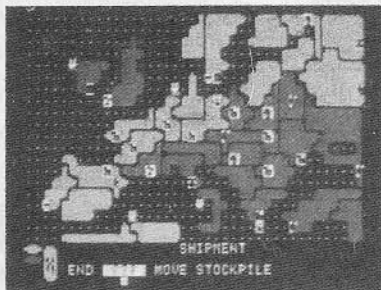
Leaderboard Par 3
CMT \$55

Legacy of the Ancients
ECP \$34.95

Live
QUE cass \$24.95 disk \$34.95

Lord of The Rings
SLM cass/disk \$44.95

Lords of Conquest
ECP \$24.95



Magnetron C64
QUE disk \$39.95 cass \$29.95
Combination arcade shoot-em-up/
strategy game.

Maniac Mansion
CMT \$55

Maniax
QUE cass \$29.95 disk \$39.95

Marble Madness
ECP \$34.95

Mega Apocalypse
ECP cass \$24.95 disk \$39.95

Micro Mud
SLM \$39.95

Might and Magix
QUE \$49.95

Monopoly cass
SLM cass \$32.95 disk \$39.95

Morpheus cass
QUE cass \$39.95 disk \$49.95
Build on to your ship as you advance
through this four-way scrolling shoot-
em-up.

Movie Maker
ECP \$24.95

Ms. Pac-Man
YPA \$19.95

Murder Party
ECP \$24.95

Murder by the Dozen
YPA \$19.95
Multi-player strategy - similar to cluedo!
Fun edge of the seat detective/strategy.

NATO Commander C64
QUE cass \$39.95 disk \$49.95
Nemesis
ECP cass \$24.95 disk 34.95

Not a Penny More
ECP cass/disk \$39.95
Adventure game based on Jeffrey Arch-
er novel.

Now Games 5
SLM cass \$29.95
compilation.

Okinawa
SLM cass \$19.95 disk \$24.95

Out of This World
ECP cass/disk \$24.95

Overlander C64
QUE cass \$24.95 disk \$34.95

Pac-Man
YPA \$19.95

Pandora C64 cass
QUE cass/disk \$39.95

Paperboy
ECP cass/disk \$19.95

Pathwords
YPA \$19.95

Patton V Rommell
ECP \$34.95



Pegasus Bridge
SLM cass \$29.95 disk \$34.95

Pegasus cass
ECP cass \$24.95 disk \$34.95

Phalsberg
ECP \$19.95

Pile Up
ECP disk \$34.95 cass \$24.95
You are the pilot of futuristic jet. Your
mission is to transport energy marbles
to a transformer station to be delivered
to earth.

Pinball Construction Set
ECP \$24.95

Pirates C64 disk
QUE disk \$59.95 cass \$34.95
True real-life simulation Caribbean Sea
in search of wealth.

Pole Position
YPA \$19.95

Power Struggle
SLM disk \$24.95 cass \$19.95

Predator C64
QUE disk \$39.95 cass \$29.95

Project Stealth Fighter
CMT disk \$39 cass \$35
QUE disk \$59.95 cass \$49.95
Flight simulator.

Psyco Pigs UXB
OZI cass \$29.95 disk \$39.95
Unexploded bombs

Que-dex
SLM disk \$32.95 cass \$27.95
The game evolves around 10 sections or
planes each of which requires a differ-
ent skill. Idea is to reach a GOAL by
overcoming obstacles.

Quick disk
YPA \$19.95

REV+
QUE cass/disk \$39.95

Racing Destruction Set
ECP disk \$24.95 cass \$19.95
Build your own crazy race tracks

Railroad Works
YPA \$19.95

Red L.E.D.
ECP disk \$34.95 cass \$ 24.95
Similar to Marble Madness.

Red Storm Rising
CMT \$69

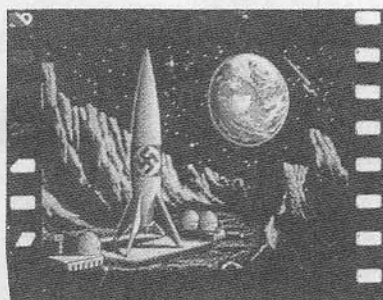
Rimrunner
SLM disk \$34.95 cass \$29.95

Road to Moscow
ECP \$89.95

Roadwars
SLM \$39.95

Robot Rascals
ECP \$69.95

Rocket Ranger
YPA \$54.95
Cinemaware - ray guns, zombie women, famous scientists



Rolling Thunder
CMT \$44.50

Samurai Warrior
SLM cass \$27.95 disk \$32.95

Sanxion
ECP cass/disk \$24.95

Savage C64
QUE disk \$39.95 cass \$29.95

Salamander
OZI cass \$29.95 disk \$39.95
Super fast action

Scalextric
SLM \$32.95

Scooby Doo
ECP cass/disk \$19.95

Scrabble
SLM cass \$32.95 disk \$39.95

Scruples
SLM cass \$32.95 disk \$39.95

Seven Cities of Gold
ECP \$24.95
Strategy/adventure. Colonise the new Americas.

Shadows of Mordor
SLM cass \$27.95 disk \$32.95

Shoot
SLM \$39.95
Game building program.

Silent Service C64
QUE cass \$39.95 disk \$49.95

Silicon Dreams C64
QUE cass/disk \$49.95

Sinbad & the Thorne of Falcon
YPA 54.95

Skate or Die
ECP cass \$24.95 disk \$34.95
Entertaining skateboard competition covering many different fields of action

Skyfox II disk
ECP \$34.95

Skyfox cass
ECP cass \$19.95 disk \$24.95

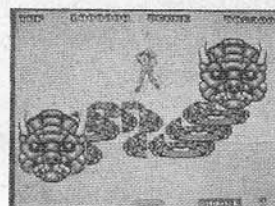
Slaine
ECP cass \$24.95 disk \$34.95

Soldier of Fortune
QUE disk \$39.95 cass \$29.95

Solo Flight C64
QUE cass \$39.95 disk \$49.95

Sorcerer Lord
SLM cass \$29.95 disk \$34.95

Space Harrier
ECP cass/
disk \$19.95



Space Rogue
QUE \$49.95

Star Fox disk
ECP disk \$34.95 cass \$24.95
Space Adventure

Star Wars
ECP cass \$34.95 disk \$39.95

Starglider
QUE cass/disk \$49.95

Starray
QUE \$49.95

Stealth Mission
CMT \$89.00
QUE \$9.95
Flight simulation

Street Hassle
SLM cass \$27.95 disk \$32.95

Street Sports Baseball
QUE \$34.95

Street Sports Soccer C64
QUE disk \$34.95 cass \$24.95
This is soccer with the old neighborhood

Strike Fleet
ECP \$34.95

Sub Battle Simulator
QUE \$34.95

Summer Olympiad
YPA cass \$34.95 disk \$47.95
High diving, skeet shooting, fencing, hurdles and triple jump.

Super Pac-Man
YPA \$29.95

Superstar Ice Hockey
YPA \$49.95

Superstar Soccer
YPA \$49.95

TAB Betting
ECP cass/disk \$99.95

The Android
ECP cass \$24.95 disk \$34.95

The Armageddon Man
ECP cass \$39.95 disk \$49.95

The Big One
COM \$29.95

The Fury
ECP cass \$24.95 disk \$34.95

The Hobbit (Book & cass)
SLM \$39.95

The Hobbit
SLM cass \$27.95 disk \$39.95

The Living Daylights
ECP cass \$29.95 disk \$39.95

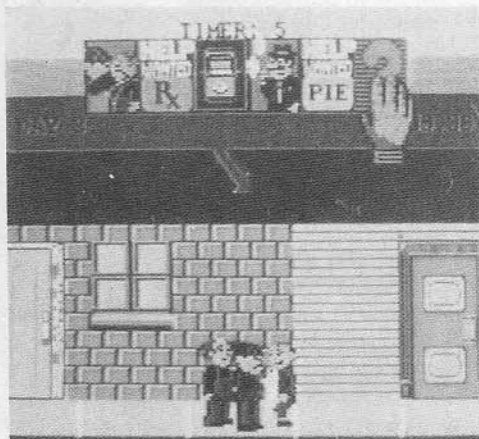
The President is Missing
QUE \$49.95
Graphic adventure.

The Vixen
ECP cass \$24.95 disk \$34.95
In the jungle with evil reptilian nasties.
Sideways scrolling arcade action.

Theatre Europe cass
SLM cass \$19.95 disk \$24.95

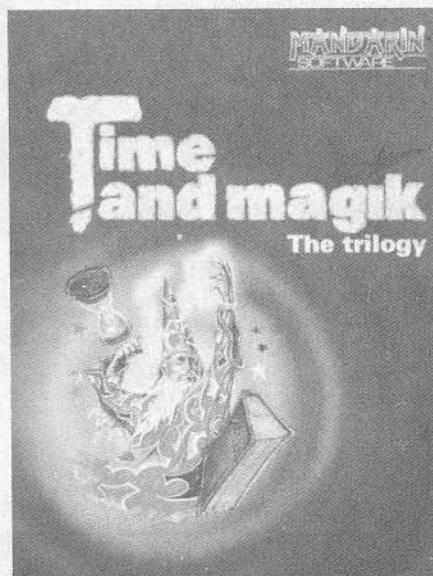
They Stole a Million
ECP cass/disk \$19.95

Three Stooges
CMT cass \$49.00 disk \$54.95
Cinemaware - fun and action. Can the
Three Stooges save an orphanage from
foreclosure?



Thundercats
ECP cass/disk \$24.95

Time and Magik
PAC disk \$39.95 cass \$29.95
A complete trilogy of Level 9 graphic ad-
ventures with enhanced parser



Tobruk
SLM cass \$29.95 disk \$34.95

Touchdown Football
ECP \$24.95

Triella
ECP cass \$24.95 disk \$34.95

Trivial Pursuit Baby Boomers
ECP \$19.95

Trivial Pursuit Young Players
ECP \$19.95

Troll
SLM cass \$29.95 disk \$34.95

Typhoon
OZI cass \$29.95 disk \$39.95
Wargame. Unique graphics, tight game
play, plenty of action.

Ultima IV
QUE \$59.95

Ultima V
QUE \$59.95

Up Periscope
QUE \$59.95
Submarine simulation/strategy game.

Wanderer C64
QUE cass \$24.95 disk \$34.95

Wasteland
ECP \$34.95

Welcome to the Rat Race
ECP cass \$24.95 disk \$34.95
Life simulator - aim to collect money.

Werewolves of London
ECP cass/disk \$24.95

Wheel of Fortune
PAC \$34.95
QUE \$69.95
The TV show game. Great graphics
make this a thoroughly entertaining
game for the whole family.

**Where in the World is Carmen San
Diego**
QUE \$69.95
Chase Carmen around the world from
clues. Very entertaining, also education-
al.

Carmen San Diego Backup 64
QUE \$18.95

Winter Olympiad 88
QUE cass \$39.95 disk \$49.95

Wonderboy
QUE cass \$29.95 disk \$39.95

World Class Courses #1 C64
QUE \$39.95

World Class Courses #2 C64
QUE \$39.95

World Class Courses #3 C64
QUE \$39.95

World Class Leader Board C64
QUE disk \$39.95 cass \$34.95

World Tour Golf
ECP cass \$24.95 disk \$49.95

Yes Prime Minister
ECP cass \$39.95 disk \$49.95
A very tactical game of the BBC series.
Pointer controls functions.

GEOS Programs

GEOCALC 128

CMT \$129

Spreadsheet, 28,000 cells in 256 x 112 column grid. Will perform advanced maths functions.

GEOCALC 64

CMT \$89

See GeoCalc 128.

GEODEX 64

CMT \$79

COM \$69

Indexing program

GEOFILE 128

CMT \$129

Filing system, reasonably powerful.



GEOS 64 V1.3

CMT \$99

GEOS 64 V2.0

CMT \$119

GEOS Cheatsheet for C64/64C

CMT \$9.5

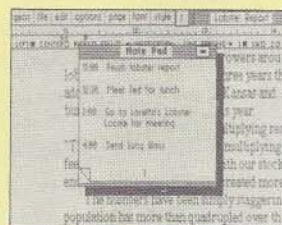
GEOS Companion

CMT \$55

GEOS Desk Pack 64

CMT \$59

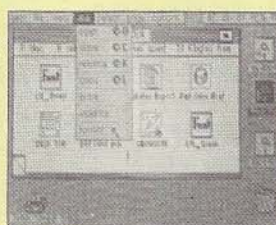
Contains graphics converter for putting graphics from other programs into Geos format, Icon Editor for creating and customising file icons and converting non-Geos files into Geos format, and calendar.



Geos :- Desk Accessories



GeoPaint



Desktop

GEOFILE 64

CMT \$89

See Geofile 64.

GEOPROGRAMMER

CMT \$129

Assembly language development system.

GEOPublish 128

CMT

Desktop publishing, mix text and graphics etc.

GEOPublish 64

CMT \$89

See GeoPublish 128.

GEOS

COM \$99

Graphic based operating system. Uses pull down menus, windows and icons.

GEOS 128

CMT \$129

Another operating system for the 128.

GEOS Desk Pack Plus 128

CMT \$59

GEOS Desk Pak 1

COM \$79

GEOS Writer 64

CMT \$69

GEOS Writers Workshop

COM \$79

Wordprocessing program.

GEOSpell 128

CMT

GEOSpell 64

CMT \$59

GEOWrite Workshop 128

CMT \$119

Contains updated and enhanced version of GeoWrite, a mailmerge program called GeoMerge, a file converter which converts text files from other word processors and GeoLaser to enable use of Apple LaserWriter.

GEOWrite Workshop 64

CMT \$89

See GeoWrite Workshop 128.

GEOS Accessories

GEOS Font Pack 1

COM \$49

Extra fonts or Type Styles for GEOS.

GEOS Font Pack 64

CMT \$59

GEOS Font Pack Plus 128

CMT \$59

GEOS Geoprint Cable

COM \$69

Print directly via user port to a centronics type printer.

GEOS Tricks & Tips Disk

CMT \$35

GEOS Triple Pack 64

CMT \$89

Graphics

Advanced Art Studio 64/128

QUE cass/disk \$69.95

Multi-colour drawing/paint package. Options include:Text, zoom, multiple brush types and patterns,rotate and flip a brush, various fonts and multi picture editing.

Animation Station

CMT \$139

Computer graphics sensor pad. Better than Koala Pad - plenty of features.

Artist 64

PAC \$89.95

Sophisticated, needs mouse. Colour priority, cycling, block copying, animation, zoom, etc.

Blazing Paddles

CMT \$59

PAC \$69.95

Graphics program complete with Lightpen, now you can draw onto the screen itself. Easy to use, ideal for children.

CADPAK 64

CMT \$89

Colorme: Computer Colouring. Kit
YPA \$49.95

Doodle
CMT \$75
Hi-res only drawing package. Lots of on-screen help semi-menu drive. Pictures may be printed.

Flexidraw
CMT \$69
Hi-res drawing package. Input by light pen.

Flexifont
CMT \$59

Graphic Library Disk 1
QUE \$49.95

Graphic Library Disk 2
QUE \$49.95

Graphic Library Disk 3
QUE \$49.95

Graphics Galleria Vol 1
CMT \$59

Graphics Galleria Vol 2
CMT \$59

Graphics Integrator
CMT \$59

Graphics Scrap Off the Wall
QUE \$34.95

Graphics Scrapbook Sports
QUE \$34.95

Graphics Utility v2.0
CMT \$79

Kwik Paint
PAC \$12.95
Simple to use drawing program ideal for kids.

Lightpen
CMT \$119
Inkwell 184C. Very powerful drawing/drafting piece of software which allows you to use almost any input device produce simple sketches or tech. drawings.

Plus Page Illustrator 128
CMT \$79

Print Shop Companion C64
QUE \$69.95

Spellbound
CMT \$42.5
For use with *Animation Station*.

The OCP Art Studio C64
QUE cass/disk \$49.95
Multicolour, hi res, pull down menus, print option, text. Input by joystick, mouse or touch pad.

The Toyshop
QUE \$79.95
CMT \$79
Turns your Commodore into a factory which produces components for a range of 20 "kit set" toys to assemble and paint.

Interfaces

Interface:Graphics (Junior)
MIC \$129
DAS \$129

RS 232 Interface for C64/128
CMT \$89
Use a standard modem with this interface. Plugs into USER port.

XETEC Super Graphix Gold
CMT \$259
DAS \$249

XETEX Super Graphix
CMT \$195
DAS \$189

Joysticks

Competition Pro 5000
OZI \$39.95
Two fire buttons on base, none on hand grip. No suction feet.

Cruiser Joystick C64
QUE \$39.95

D Com Joystick
OZI \$14.95
Three fire controls, positive feel, four suction feet,

Dynamic Clear Joystick C64
QUE \$49.95

EPYX 500 XJ C64
QUE \$34.95

Joystick
PAC \$19.95
Ideal for car games as one button on either side of handle. Good suction feet.

Joystick: Q/S MKII
MIC \$29.95

Micro - Switch Challenger
PAC \$29.95
Comfortable grip, strong suction pads, auto fire button.

Modern Joystick #2 C64
QUE \$19.95

Modern Joystick #3 C64
QUE \$29.95

Modern Joystick #6 C64
QUE \$24.95

Modern Joystick #7 C64
QUE \$29.95

Modern Joystick #8 C64
QUE \$24.95

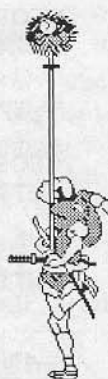
Navigator
ECP \$44.95
Comfortable, strong, micro - switch action. Must be hand held.

Quick Gunner
ECP \$14.95
Small design, comfortable grip, strong suction caps.

Star Cruiser
ECP \$49.95
Tough heavy duty, large sized nonsense, will stick to your desk. Three fire buttons.

Winner 220
PAC \$29.95
Well placed fire buttons. Solid base with suction caps.

Winner 770
PAC \$29.95
Emulates feel and action of proportional joystick.



Zapper 120

ECP \$19.95

Four fire buttons and auto switch on base.

Magazine on disk**Suite 64**

PRI \$12.95

A monthly magazine on a disk. Double sided education.

Misc Products

A collection of programs which don't fall into any other specific category but are generally functional day-to-day small business applications

AdvertiserECP *cass* \$8.99**B-Graph**

ECP \$34.95

Calkit

ECP \$34.95

Chartpack 128

CMT \$89

Chartpack 64

CMT \$79

Consultant Classic

ECP \$89.95

Consultant

ECP \$34.95

Database diary, Label Maker

CMT \$59

Homepack disk

ECP \$34.95

KwikPad

PAC \$19.95

Mastertype disk

YPA \$59.95

Pocket Planner Series 2 64/128

QUE \$89.95

Quadrillion - 4 in 1 pack disk

ECP \$19.95

Word FlyerECP *cass* \$8.99**Music****Advanced Music System**

QUE \$99.95

Good music entry and SID control. Modules: Editor, Keyboard, Synthesizer, Linker, Printer.

Instant MusicECP *cass* \$24.95 disk \$34.95**Music Construction Set**

ECP \$24.95

Music stored on disk to listen to, or create your own by pointing with joystick

Music Studio

QUE \$49.95

Icon-based, uses joystick control of music entry and playback. Library included.

Music Writer

YPA \$19.95

Songwriter

YPA \$34.95

The Music System C64 *cass*QUE *cass/disk* \$49.95Like *Advanced Music System* but fewer features.**Peripherals****Datasette**

PAC \$59.95

Ultra reliable datasette for the Commodore 64 with red LED write light lets you know when information is being written to the tape.

Slimline Case

MIC \$19.95

Magic Mouse

PAC \$69.95

Mouse with multi-function software.

Mouse/Cheese Set

PAC \$129

The best mouse for the C64. Complete with its own software.

Programming**BASIC 8 128**

CMT \$79

BASIC Compiler 128

CMT \$120

BASIC Compiler 64

CMT \$79

Becker BASIC

PAC \$99.95

New BASIC for C64. Allows you to program in BASIC to run under GEOS. Adds more than 170 new commands to BASIC.

Blitz Compiler

PAC \$44.95

Speed up your BASIC programs to 2000% faster. Disk (64 Version)

C128-Assembler

COM \$69

COBOL 128

CMT \$89

D-Coder/N-Coder

PAC \$24.95

The easiest way to interpret Machine Code.

D-Compiler

PAC \$24.95

Converts a BLITZ compiled program back to BASIC statements.

Super Pascal 128

CMT \$119

Super Pascal 64

CMT \$99

Super-C 128

CMT \$109

Super-C 64

CMT \$99

Spreadsheets**Kwik Calc**

PAC \$19.95

Spreadsheet program that is perfect for beginners. 3500 active cells.

Multiplan

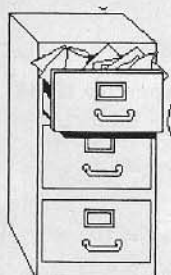
CMT \$49

Swift Spreadsheet

COM \$99

PAC - \$69.95

One disk has both the C64 and the 80 column C128 versions.



SwiftCalc 128
COM \$99

Utilities

Anti Knock
MIC \$14.95

Stops your drive from rattling when there is an error. Also stops damage caused by some disk protection.

Cartridge Port Expander
WEST
4 slot \$69.95 3 slot \$49.95

DIR+
PAC \$24.95
Excellent disk cataloging program.

Datasette Alignment Kit
CMT \$30

Datasette Doctor
MIC \$34.5
Enables servicing of Datasette unit.

Datasette Head Cleaning Kit
CMT \$7.5

Digital Superpack Series 2
QUE \$149.95

64/128 Disk Disector
MIC \$54.95
Disk archiving program.

Disk Notcher for 5.25
CMT \$18
Use both sides of disks by making an extra notch.

Expert V3.2 U/D
MIC \$24.95
User programmable and easily updated. Disk backup.

Kwik Utility
PAC \$19.95
Deluxe DOS utilities fast loading system.

Disk Mainframe C64
QUE \$34.6

Masterlock
PAC \$16.95
Foolproof security for your software.
Stops ALL copiers.

Photocopy
PAC \$39.95
Converts Print Shop to Newsroom or Doodle vice versa.

Quickdisc + MK II
MIC \$54.95
Fast load utility cartridge.

Userport Expander Card
MIC \$33

Utility Station
CMT \$29
Suits all models.

XETEC Super Graphix Jnr.
CMT \$125
Interface.

Video

Home Video Producer
CMT \$89

Photo Finish
CMT \$55

Screen FX
CMT \$69

Word Processing

Easy Script
The first and most popular word processor ever on the c64. Popular if somewhat difficult to use, yet well supported due to its popularity.

Fleet System 2 Plus 64
CMT \$69
Word processor including *Fleet Filler*.

Fleet System 4 128
CMT \$89
Three disks - word processing program, expandable spell checker/dictionary.

Fontmaster 128
CMT \$99

DAS \$89.95
Easy to learn and use and gives extremely professional results.

Fontmaster II 64/128
CMT \$89
DAS \$69.95
Multi font, full featured.

Kwik-Write
PAC \$39.95
A full featured word processor, menu driven for ease of use.

Mini Office II
PAC disk \$54.95 cass 45.95
Six-in-one business program - word processor, spreadsheet, communications and business graphics.

P.W. Dictionary 64/128
QUE \$39.95

Paperclip II (128)
ECP \$99.95
Advanced package with many options.

Paperclip II (64)
ECP \$89.95

Paperclip
ECP \$34.95

Paperclip with Spellpack disk
ECP \$34.95

Pocket Writer Series 2 64/128
QUE \$89.95

Super Script
OZI C64 \$99 128 \$169.95
The big brother of Easy Script, incorporating a far improved menu system and many additional features

VizaWrite 128
COM \$149

Word Perfect
PAC \$69.95
Easy to learn software.

Word Wizard
ECP cass \$8.99

Distributors

AHT Action Hi-Tech
20 Harker Street
Burwood, Vic, 3125
(03) 288 2100

CMA Computermart
622 Newcastle Street
Leederville, WA, 6070
(09) 328 9799

CMT Computermate
9 High Street
Mt Kuringai, NSW, 2080
(02) 457 8118

COM Commodore Computers
67 Mars Road
Lane Cove, NSW, 2066
(02) 427 4888

DWK Diskworks
178 Pacific Highway
St Leonards, NSW, 2065
(02) 436 2976

ECP ECP
Unit 4/18 Lawrence Dr
Nerang, Qld, 4211
(075) 963 488

GPT Greg Perry Terminal
21 Alloomba Road

MIC Micro Accesories
Unit 8, Hewittson Road
Elizabeth West, SA 5113
(08) 287 0191

OZI OziSoft
3rd Floor, 8-24 Kippax St
Surry Hills, NSW, 2010
(02) 211 1266

PAC Pactronics Pty Ltd
33-35 Alleyne Street
Chatswood, NSW
(02) 407 0261

SLM Software Licensing & Marketing
Same as YPA

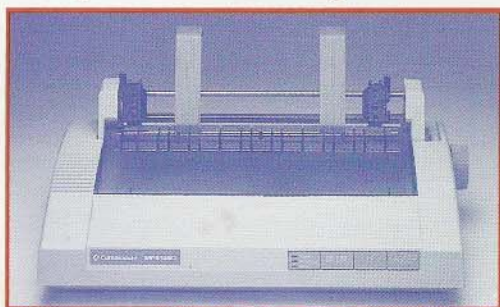
QUE Questor
55 Mentmore Avenue
Rosebery, NSW, 2018
(02) 662 7944

WEST Westend Computers
402-404 Bell St
Pascoe Vale, Vic 3044
(03) 350 5144
Qld (07) 221 0055

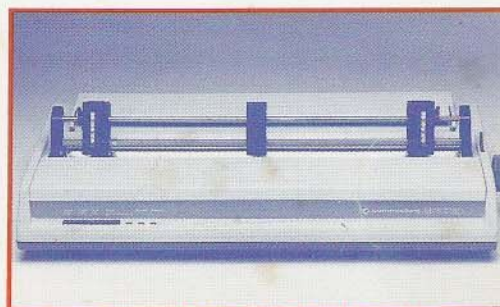
Commodore Printers the logical solution

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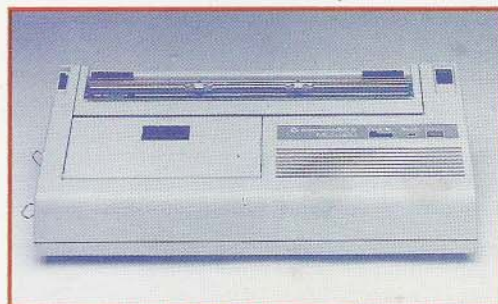
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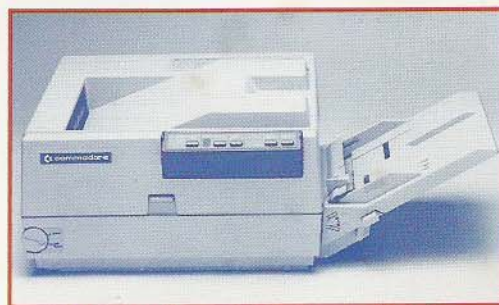
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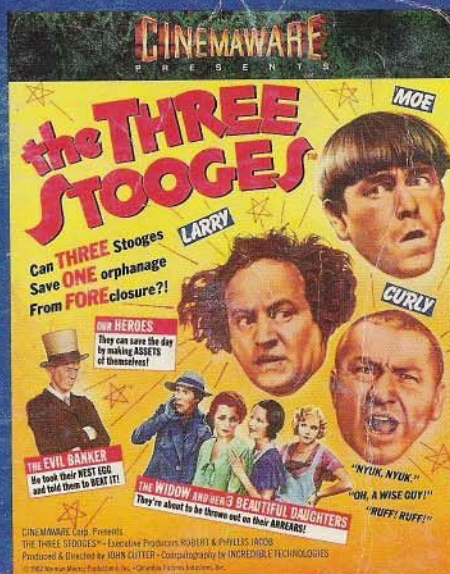
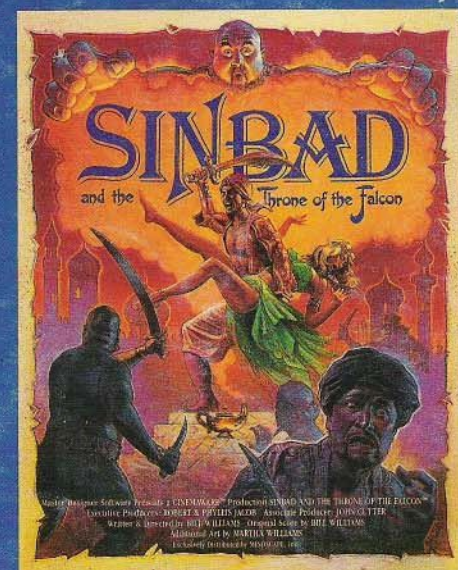
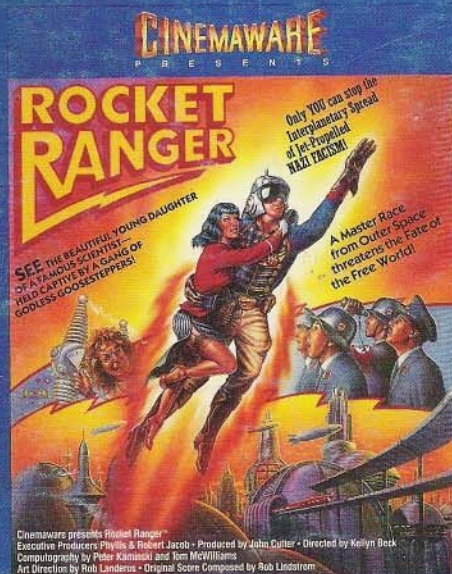
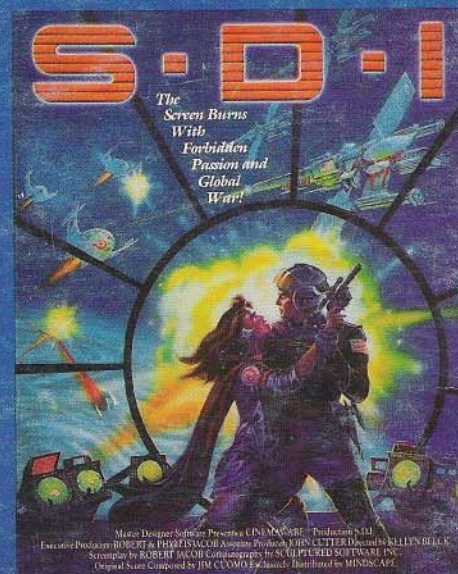
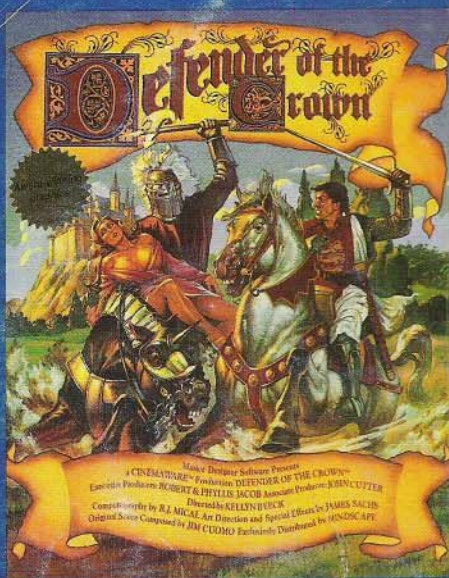
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